# School Shop

vol. XIII no. 9

MAY 1954

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by Arthur B. Mays

**Reflector Oven Kit**
by Neil Helgeland

**Students See the Community at Work**
by Donald L. Lippold

**Electric Scoreboard Clock**
by Russell Barrowman

Cover story: Drafting student at the Kearney, New Jersey, High School working on the board. An advanced student, he is inking the drawing and using lettering guide. (Photo, W. A. Walker)

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# School Shop TALK

**COMMENTS ON ISSUES FACING INDUSTRIAL EDUCATION**

## What Is the Top Limit of a Boy?

(A Guest Editorial)

We really don't know—it is our opinion that no one can tell, and too few try. The teachers who are forever seeking the answer to that question are the "golden ones." Everyone who has been associated with education can name coaches who win more than their share of games, music teachers who seem always to have superior talent in their classes, and industrial-arts teachers who, in spite of large classes and below-average equipment, always have more skilful workers and a finer climate for learning than that found in other shops.

Some of us have watched with amazement and pleasure the heights to which boys, under a master teacher, in one school climb; and we have observed with sorrow the mediocre attainment of those in another school who presumably had equivalent mental and physical abilities and environmental backgrounds. The only discernible difference was the teacher.

Over a period of 30 years of supervising and assigning instructors, the writer has been privileged to work with many superior teachers — teachers who could be counted on to inspire pupils to great effort and clever enough to teach each boy to succeed.

Perhaps this article should also deal with the top limit of a teacher because in the dozens of cases we have observed where whole classes have shone, a teacher who was trying to find the upper limits of a boy was in charge.

As proof of our contention that we don't know what the "top limit" of a boy is — we have transferred superior teachers to schools where the instructor and pupils were unhappy and doing work that was mediocre or worse, and have seen whole classes learn and produce to an amazing degree. We have, on occasion, transferred another and better teacher and have observed the same group which had become outstanding show another burst of improvement. Conversely, we have seen, all too often, the very opposite effect when a poor teacher took over what had been a good class.

It is little less than criminal if we don't give our best to our pupils—our most lovable side, our best planning, and our ever-improving skill.

If each of us would remember, as we prepare for our class, that each child has an almost unlimited capacity for improving his performance and also a tendency to stop trying to improve when incentives are lacking, even the inept among us could improve.

We want to close with one of the many proofs in our files of how even a neophyte who is intelligent and tries to use all his ability to improve can change whole groups.

One day several years ago a teacher of many years' service came into our office and asked to be transferred out of an elementary school located in a very poor district. His reason—he had lost control of all his classes. It was a tragic situation! Of course he was transferred and, on a hunch, a first-year teacher was moved in. One week later these boys, some of whom rolled drunks in the alleys and others whose mothers tapped on windows and all of whom were perhaps wiser and more worldly than the new teacher, had become orderly, were planning projects, and showing signs of enthusiasm. The change in attitudes was startling; the improvement in workmanship surprising to all who knew the previous record. Unfortunately, a few months later, it was necessary to take this teacher to fill a vacancy that had arisen in a high school. On Monday following the transfer of this new teacher a bold little seventh grader came into our office and placed a folded bit of tablet paper on our desk and departed: "Mr. Pickens: Please send Mr. —— back to our school, we love him." This note was signed by all boys taking industrial arts. Neither their principal nor their classroom teacher knew of this request.

This was one of the low spots in our professional career! Why could not Mr. —— have been twins? There is, however, a bright side: this teacher is still searching with ever-increasing skill for the upper limit of each boy who enrols in his classes.—*V. L. Pickens, Chairman, Division of Practical Arts, Kansas City, Missouri, Public Schools.*

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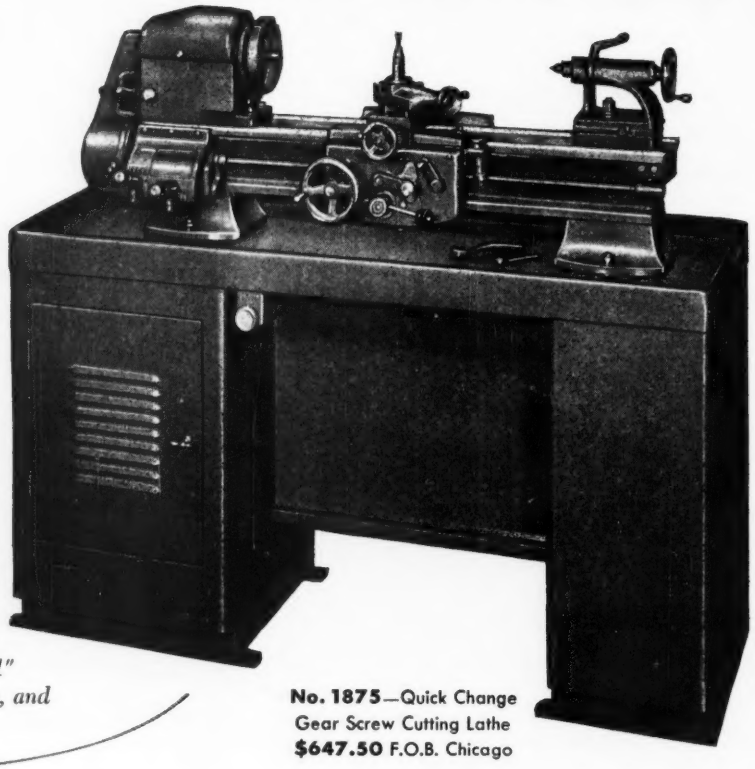

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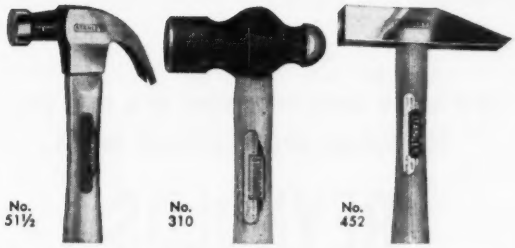


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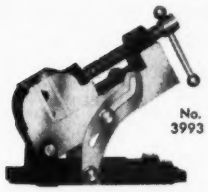
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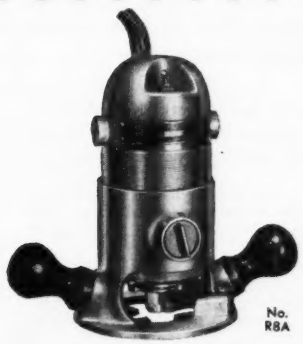
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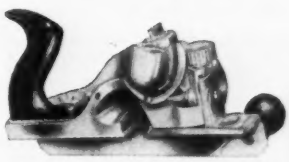
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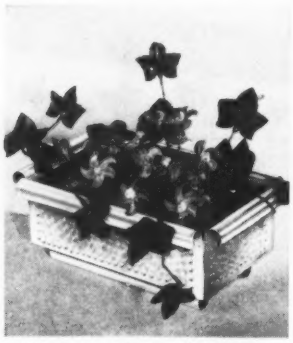

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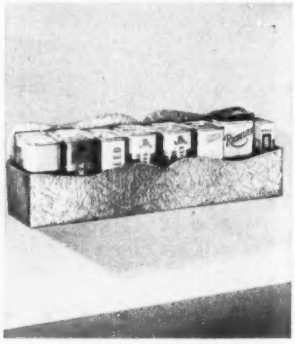

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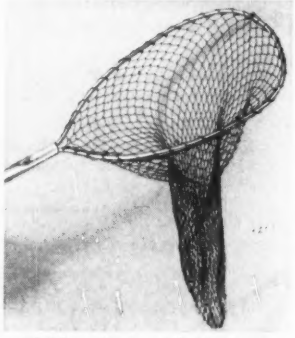

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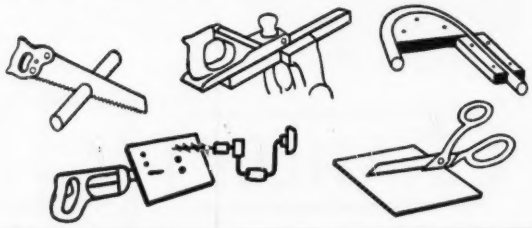

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A "middle-of-the-roader" discusses

# Progressive Education and Industrial Arts

*By Arthur B. Mays*

Professor Emeritus of Industrial Education,
University of Illinois, Urbana

INDUSTRIAL arts came into the schools as a progressive movement and has, throughout its history, been in the forefront of educational progress. It is, therefore, not surprising that the present-day progressive-education movement should have some effect on the work of the shops and drawing rooms of the industrial-arts program.

Most of the key words of the progressive-education movement, such as: "teaching pupils, not subjects," "interest," "growth," "individual differences," "social adjustment," "democratic living," "freedom," "learn-by-doing," "selfexpression," etc., express concepts that have played major roles in the underlying theory of industrial arts throughout most of its history.

Industrial arts for many years has been far in advance of the other subject-areas of the schools in applying the educational principles involved in these concepts. Much of the educational philosophy of progressive education is familiar ground to the well-trained industrial-arts teacher, but the practices of some "progressive" shop teachers seem to many in the field of industrial arts to be not applications of principles that produce progress, but rather to be perversions of such principles.

### "Swallowed Whole"

Throughout the history of education in the United States every new movement proposed to improve the work of the schools has been uncritically "swallowed whole" by a large section of the teaching profession without waiting to understand fully its meanings and implications. This is one of the singular weaknesses of too many educators, and the children have often been the victims of the unwise enthusiasms that cause the hasty adoption of bad practices.

A careful study of the thinking underlying the modern progressive movement reveals that much of it is unquestionably sound, and that what is good in it has always been practiced by the best teachers throughout the ages; and most of what is bad in it has always been bad teaching procedure. Most of the errors of modern progressive-education teachers are due to their exaggerating the practices implied in its theories, and overemphasizing the more questionable features of the basic philosophy on which it is based. To the present, progressive education has suffered far more from its friends who have found it too "easy to do it badly," than from its enemies who have attacked even some of its most defensible and valid theories and methods.

Progressive educators have, for the most part, been less than wise in their manner of meeting the criticisms directed toward the practices of the progressive schools; and since the methods and curriculums of those programs to which laymen and conservative educators most often object are proudly defended as "progressive," the whole program of progressive education has come to be the object of attack by large sections of the citizens of the nation.

### "Something Is Wrong"

In recent years there has been so much controversy over progressive theories and methods among educators, and the situation has become so explosive that it has finally burst its former confines within the "sacred halls of learning" and reached "the man in the street." He is now sure that something is very wrong in the schools that his children attend, and until he can be convinced that graduates of progressive schools are better trained in the fundamentals and are better disciplined, and possess more adequately adjusted personalities than those of traditional programs of education, progressive education will continue to be under strong attack from the layman taxpayer, as well as from the conservative educators.

Furthermore, the "middle-of-the-road" educator, who is neither an extreme conservative nor an extreme "leftist," thinks that there is much in progressive education that is less than desirable. He does not concede that in order to achieve real progress in educational procedures it is necessary to discard all that has been found effective and useful in the past, nor is it necessary or desirable to ignore all that racial experience of thousands of years has taught concerning the training and education of the young. He is not opposed to progressive education *per se*, but he has many questions about what he has seen in the classrooms, laboratories, and school shops of progressive schools.

Doubtless many of the extreme practices that are provoking popular condemnation of all progressive education are due to what Professor Bode once called the "aberrations and errors" of the progressive movement, but to a large section of both the educators and the laymen they are simply departures from the sound educational practices and common sense that long experience in training the young has taught parents and teachers.

### Bad Practices

Some of these practices are: (1) The overemphasis on immediate and transient child interests as a basis for choosing learning experiences, rather than the cultivation of greatly needed long-range interests that lead to learnings and skills of permanent value; (2) Interpretation of democracy in such ways as to discount the importance of authority, and of respect for and obedience to properly constituted authorities; (3) An overemphasis on pupil wants and whims rather than an emphasis on the development of a sense of duty, or what one *ought* to want and *ought* to do; (4) An overemphasis on the importance of so-called "selfexpression" before one has developed sufficient knowledge and skill in procedure to express adequately and skillfully something that is worth expressing; (5) An apparent disregard of the careful training in disciplined behavior in the name of "freedom." This is one of the most universally criticised aspects of progressive education. Undue freedom, before a disposition to self-control is manifested, clearly violates all that the race has learned from human history concerning the training of children so that they will become selfdisciplined adults. And, (6) an apparent

overemphasis on "child needs," with little regard for adult needs, in course planning. After all, the main business of the school is to prepare the young for effective adult life.

### Abuses in Shop Classes

When, in the name of "freedom," shop classes are disorderly, and even riotous; when equipment is abused, stockrooms allowed to remain in a condition of confusion, class discipline nonexistent, and the teacher addressed by his given name, or some nickname, most thoughtful teachers wonder whether progressive education when so applied to industrial arts is worth what it costs.

When there is a very sketchy course outline, or none at all, and apparently the chief guide to what is undertaken in the shop comes from answers to the question: "Well boys, what do you want to make this time?" One wonders about the principles of "freedom," "child needs," and "selfexpression" when they are so applied.

When in the interest of "social adjustment," more attention is given to instruction and assignments dealing with labor problems, economic problems, social problems, and modern-industry problems, than to what is being learned from tool processes, planning, work procedures, and to the work habits and attitudes being developed, one wonders just what the objectives of industrial arts really are as distinguished from the other subject areas of general education.

When in the name of "democracy" the pupils appear to run the shop to suit their own desires, and when the whims and desires of the pupils are considered to be their "needs," hence of major importance in course construction, one wonders why it is necessary to have a teacher at all, and whether adult experience and professional knowledge is of any importance.

When all sense of proportion is absent in the thinking of a shop teacher, and in his effort to promote "selfrealization," "freedom," and "democracy" he engages in extreme practices that violate both common sense and all that is known of human psychology, it is not surprising that educators and laymen alike, who have balanced judgments, condemn his work.

### No Discount Necessary

To be genuinely progressive, in the best sense of the word, industrial arts does not have to discount the great importance of skill in shop and drawing room, nor orderly procedures, nor sound disciplinary practices, nor conformity to the best industrial procedures in work. Nor does it have to adopt the clichés of the progressive-education terminology and apologize for the use of simple shop terms, and for greasy hands, and the wearing of overalls in class.

Notwithstanding that the aims of industrial arts include more than manipulative processes with tools and machines, it is the part of wisdom for the shop teacher, however "progressive" he may be, to remember that it was handwork and the operation of machines that brought industrial arts into the curriculum in the beginning of its history. It is that phase of the subject that induces boys and girls to choose it as a part of their school experiences; and their objectives seldom go beyond the acquisition of tool skills and the making of useful objects.

The core of the teacher's efforts can well be the development of skills, desirable work habits, and appropriate attitudes and habits of behavior. When those outcomes are achieved, all the other important objectives of industrial arts can more easily be achieved. Where skill, careful planning, and good work procedures are not required, and where, as Professor London describes such shop teaching, "aimless wandering on the part of both teacher and student" prevails, little or nothing of value will be accomplished toward the accepted objectives of industrial arts.

### "Agent Provocateur"

Modern progressive education has not only provoked discussion and controversy concerning methodology, but quite as much with reference to curriculum construction and course content. Both the conservative industrial-arts teacher and the extreme "progressive" agree that industry should be the primary source of curriculum materials, but they disagree sharply on the manner of obtaining and organizing the content of courses.

Professor London, at a recent meeting of the Mississippi Valley Industrial-Arts Conference, presented a brief summary of four major approaches to the problem of deriving content. He listed, first, what he designated as the approach of the academician, namely, "Subject-matter specialists have prescribed certain logically organized content in their respective fields as desirable for youth to know." Second, the scientific approach is: "Life activities have been analyzed to ascertain what one must know and be able to do in order to be proficient in those activities." Third, the progressive approach is: "Recipients of educational services have been asked to stipulate what they desire to learn of the school." And, fourth, the pragmatic approach is: "Third parties, such as parents and employers, have been asked to indicate what they would have the school to teach." He indicated that this is possibly an oversimplification of the situation.

### Content and Methodology

He then proposed the thesis that: "Content in industrial arts should be derived largely from an analysis of the needs and interests of adults and adult society, and that child nature, interests, and needs should be of first importance in determining methodology." This approach avoids the dangerous error of confusing wants with needs, and brings to bear all that is known of educational psychology on the process of preparing the young for modern adult life.

After all, as stated earlier, the business of the school is to prepare children and youth to meet successfully the demands of modern adult life. It is of fundamental importance that the school shall keep constantly before it the *future* of the young. The often repeated statement of the progressive educator that "the best way to prepare a child to become a good adult citizen is to cause him to be a good child citizen" has much truth in it; but when it is applied to the teaching process so as to ignore ascertained adult needs as also a vital phase of the process, it becomes an unsound and dangerous educative procedure.

When adult needs constitute the basis of selection of content materials and child needs the basis of methodology in developing industrial-arts programs, that important subject-area can be made to perform its unique function in the total education of the young in the most effective manner. It is particularly important at the secondary-school level that the major emphasis shall be preparation for adult life, and that the pupil as well as the teacher shall be fully aware of that objective. To accomplish that purpose, the pupil must know that he is dealing with materials, facts, skills, and procedures that are derived from modern adult life, and that he has a duty to perform in trying to master them for his own future function as a constructive and worthy member of adult society.

Because of the inherent character of the industrial-arts teaching situation which necessitates much freedom of movement, individual instruction, and

*(Continued on page 37)*

**Design features make this project interesting**

# Colonial Bookcase

*By Harold O. Akeson*

East Orange High School, East Orange, New Jersey

A PLAIN bookcase is greatly improved in appearance with a little added design in the right places. A few simple curves can add much to a piece of furniture that might otherwise be just ordinary in looks.

This bookcase, in the illustration, is a good project for students to build as it is neither ornate nor too plain. There is just enough design to make a pleasing job and to offer a few construction problems to make it interesting.

The wood to make this piece of furniture should be chosen to fit in with the other furnishings in the room where it is to be used. The selection of hard woods such as maple, oak, mahogany, and walnut would require a stain to match the other furniture. On the other hand, the choice may be along the lines of painted furniture. In such a case, it would involve the use of soft woods, or plywood, which are easier to work with and lower in cost.

First, prepare the side pieces. Next, cut out the rabbet for the shelves with saw and remove waste portions. If a machine saw is available, this part of the work is simplified. A ¼" allowance is made along the inside back edges of the sides to hold the plywood back.

Next, get the shelves ready. Sandpaper all parts. Assemble pieces and glue in place, using cabinet clamps for pressure. At this point, check for squareness and clean off any excess glue. While the glue is drying, the back could be made ready and sanded. Then prepare the three base pieces with the curved features. The front corners of the base should be mitered.

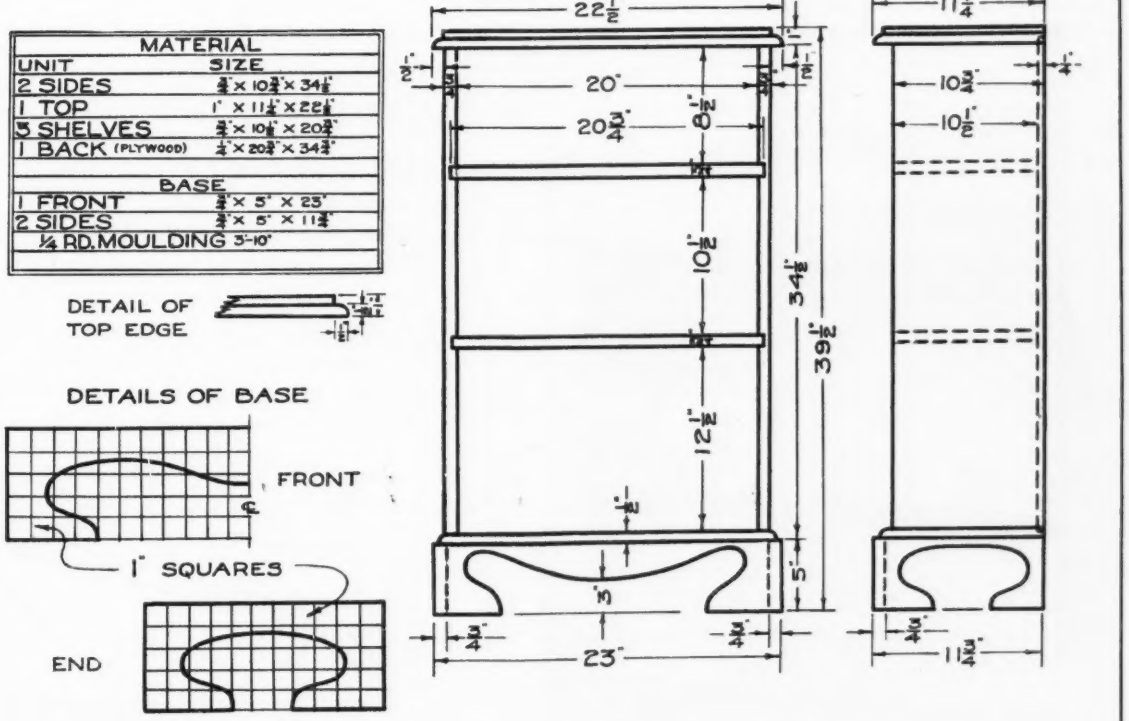
Remove the clamps, after the glue has dried thoroughly, and fit the plywood back into place. Do not be careless about this part even though it is the back of the bookcase. Fasten into place using ¾" brads or nails. Slant the nails slightly as they are driven into the sides and other supporting parts. Nails thus fastened into the wood hold much better than those driven straight down. Along the top of edge of the base, adjoining the shelf section, glue and nail a piece of ½" quarter-round moulding to match material of the project.

Finish for the bookcase is optional, depending on the wood selected and other furniture with which it is to be placed. All nail holes should be filled and colored to match the finish. Be sure to sandpaper with very fine sandpaper after each application is dry to assure a smooth surface for the following coat. ★

## Bookcase of Colonial Design

HAROLD O. AKESON

| MATERIAL | |
|---|---|
| UNIT | SIZE |
| 2 SIDES | ¾ × 10¾ × 34½ |
| 1 TOP | 1 × 11¼ × 22½ |
| 3 SHELVES | ¾ × 10½ × 20¾ |
| 1 BACK (PLYWOOD) | ¼ × 20¾ × 34¾ |
| BASE | |
| 1 FRONT | ¾ × 5 × 23 |
| 2 SIDES | ¾ × 5 × 11¾ |
| ¼ RD. MOULDING | 3-10 |



Boy Scouts in your classes will like this

# Reflector Oven Kit

*By Neil Helgeland*
Carmichael Junior High School, Richland, Washington

JUNIOR-HIGH students like the reflector oven shown here and it has many instructional points in its favor.

The oven brings together in one project many of the fundamental operations taught in simpler projects or exercises. It has the additional advantage that the junior-high age coincides with the period when Boy Scouts and other camping-minded youth have a very pronounced desire to build things for camping. Boy Scouts, especially, like it as it includes many of the operations required for the merit badge in metalworking.

This particular design for a reflector oven was developed because other designs, which the students brought in, were not wholly satisfactory for one reason or another.

This design meets most of the youngster's requirements. It is compact, easily assembled, and stable when in use. It is also completely selfcontained and can be easily carried.

In the process of building this project, the student is impressed with the need for accurate layout work. He discovers the need for craftsmanship in the operations of cutting out, as well as piercing and notching, hemming, drilling or punching, folding, riveting, and filing.

The reflector oven can be made of whatever bright metal is available. Terneplate is fine although aluminum may have some advantage over it because it will absorb heat more readily and make it easier to fry food as well as bake it. (Baking is the main purpose of reflector ovens.) Aluminum also makes a lighter kit, to which Boy Scouts attach quite a bit of importance.

The thickness of the metal should be about .032" if aluminum or slightly thinner if made from iron. A piano hinge works best for hinging the top to the bottom, although other types of hinges may be used.

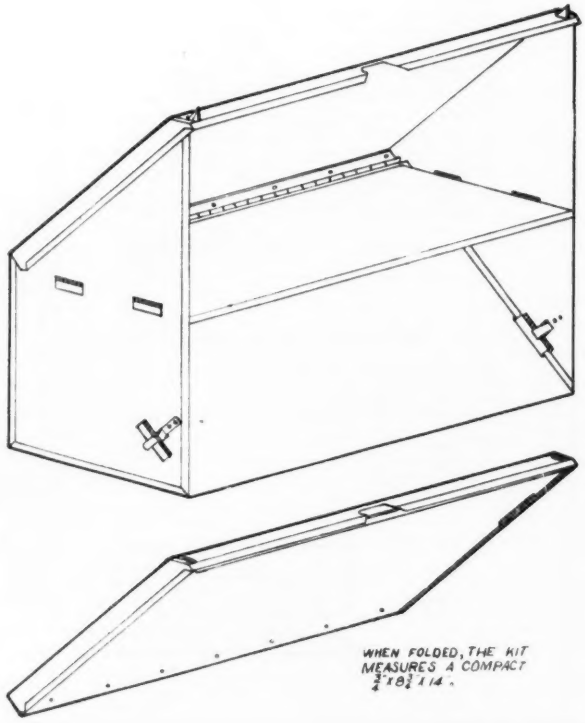
The spring shown in section *D-D* is optional. If a spring is not available, the cut-out for it should not be made, of course.

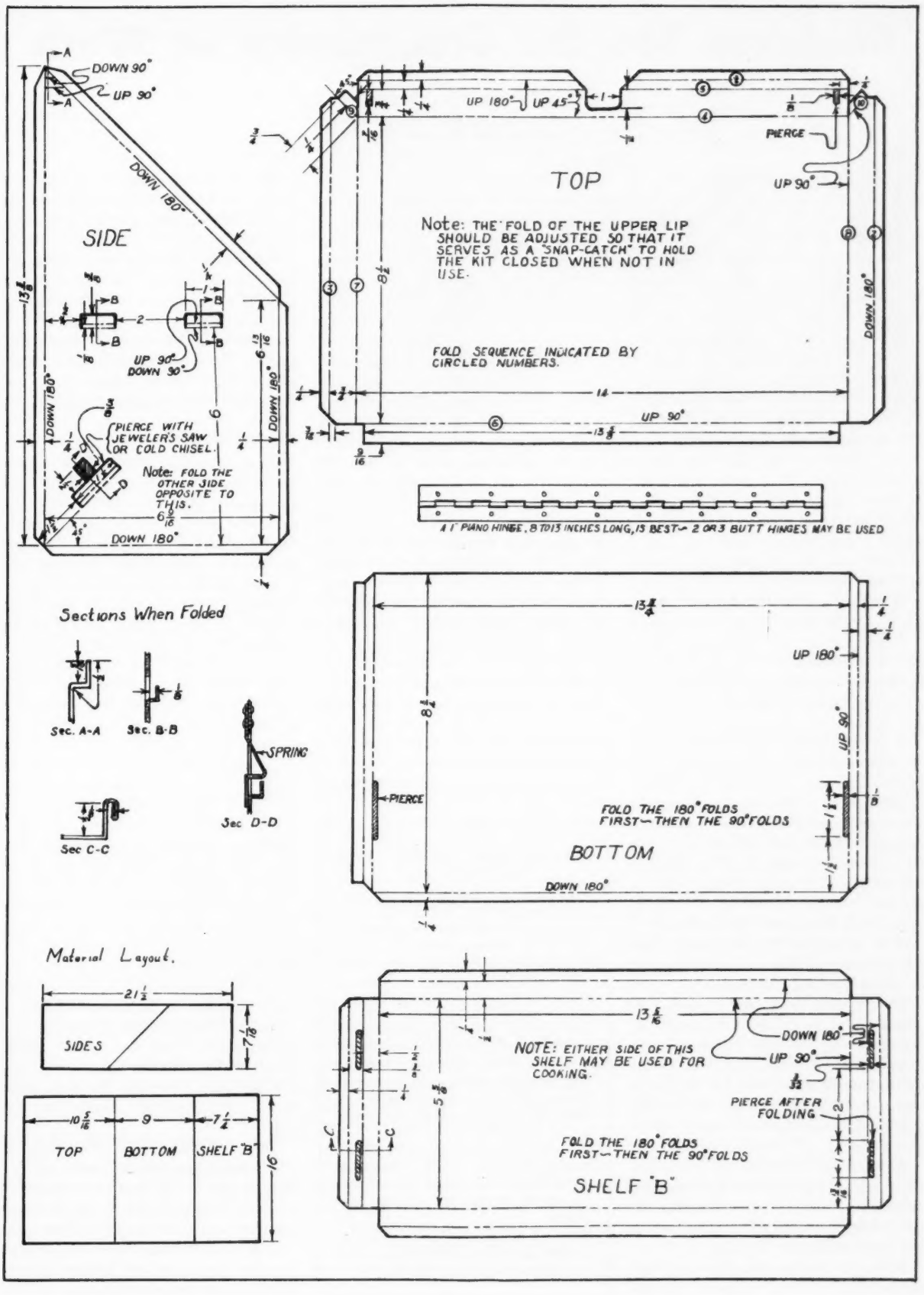
The notes on the drawing are quite important, especially the one that says to fold the sides opposite to each other.

Shelf *B* may be used either side up. One side is better for frying while the other side is better for baking. The side for frying has a ledge around it which will keep the fat and juices from dripping down on the bottom reflector. The corners of the shelf should be soldered to prevent dripping, although it is not absolutely essential to do so.

The completed reflector oven is a coveted addition to the young camper's kit and enables him to learn a number of skills in sheetmetal work. The one shown here won a prize in the Ford Industrial Arts Awards for eighth-grader John Edens. ★

This neat reflector oven folds up into a compact, light-weight unit that fits easily into camping gear. Made from aluminum, this oven is equally good for frying eggs or bacon or baking biscuits in traditional style.
Ford Motor Co. Photo




SIDE
DOWN 90°
UP 90°
DOWN 180°
PIERCE WITH JEWELER'S SAW OR COLD CHISEL.
Note: FOLD THE OTHER SIDE OPPOSITE TO THIS.
TOP
UP 180°
UP 45°
PIERCE
UP 90°
Note: THE FOLD OF THE UPPER LIP SHOULD BE ADJUSTED SO THAT IT SERVES AS A "SNAP-CATCH" TO HOLD THE KIT CLOSED WHEN NOT IN USE.
FOLD SEQUENCE INDICATED BY CIRCLED NUMBERS.
4 1" PIANO HINGE, 8 TO 13 INCHES LONG, IS BEST — 2 OR 3 BUTT HINGES MAY BE USED
Sections When Folded
Sec. A-A
Sec. B-B
SPRING
Sec D-D
Sec C-C
BOTTOM
PIERCE
FOLD THE 180° FOLDS FIRST — THEN THE 90° FOLDS
Material Layout.
SIDES
TOP
BOTTOM
SHELF "B"
NOTE: EITHER SIDE OF THIS SHELF MAY BE USED FOR COOKING.
PIERCE AFTER FOLDING
FOLD THE 180° FOLDS FIRST — THEN THE 90° FOLDS
SHELF "B"

On "Know Your Waterloo Day"

# Students See the Community at Work

*By Donald L. Lippold*

Director of Industrial Education,
Public Schools, Waterloo, Iowa

A RUDE awakening awaits many of today's American high schoolers. Why? Because they never receive the opportunity to experience our complex workaday world until after graduation. Then as participants they are exposed, too quickly perhaps, to the necessity of making a living. Fifty years ago it didn't make much difference, and the transition was not too great a shock to them.

But our society has radically changed. For example, family life is not as closely knit as it once was. The American family has not necessarily gone from bad to worse, however. It is only that other agencies, as the world progresses, have needed to take on some of the traditional family and community functions.

Therefore, one of our educational problems is to continue to keep pace with society's demands. No more must we be content with giving our children a Nineteenth-Century education. Their educational goals must be kept geared to the modern Twentieth Century and all its industrial might.

### The Community Is Changing

To illustrate one of these changes, one might show how our rural population is decreasing with people living in larger and more complex groups. Many reasons, of course, are responsible. Some would include the growth of big business and its resulting social groups; the invention of the telephone, telegraph, radio, and television; the building of modern superhighways to handle fast-moving automobiles; and the designing of steamships and airplanes.

Also, it used to be that a man's economic status could be determined by his community's growth. This is not true now. He often works for a large industrial corporation, and his economic status depends on whether or not this plant and its associates can make profits on a national and a world-wide scale.

A wage earner learns to specialize. He worries about layoffs and whether his neighbor is making more than he. No more does his community come first in his bread-and-butter thinking.

Although it is true that the many economic and political interests of the community appear on the surface to be in opposition to each other, they do share a common interest in the over-all success of the community as a whole. This fact must be made crystal clear to all young people entering the business world for the first time. And they should be shown before they leave school while they are still in an educative mood.

The old saying "No man liveth unto himself" was never more true than it is today. The day of the independent frontiersman is past. Today, with our towns, cities, and farms occupied by descendants of immigrants from all over the world, formerly unchanging class distinctions have been done away with or changed. Economically, the invention of new machines and the rapid development of our natural resources are creating new social groups which change personnel much more freely than under the old system. It can truly be said that agriculture, labor, industry, education, religion, and science are dependent each on the other, and the man who is employed in any one of these groups must be concerned with the success of all the others. This fact, also, must be taught to our future citizens and workers before they enter society as responsible participants.

**What businessmen said about "Know Your Waterloo Day"**

- It was a pleasure to talk to these youngsters and show them around. They were all very attentive and seemed interested in learning about our operation. It gives the student a much better idea of what is going on in his city.
- We are very much interested in this most worthwhile program and very appreciative of all our Waterloo school executives are doing to advance the education of our citizens of tomorrow.
- From our own standpoint it helps, too, because in preparing material to present to the pupils, we get a better knowledge of our own business.
- We like it because it gives us a chance to show off the home of our product with all of the care and complications which go into its manufacture and merchandising.
- I think the activity is worthwhile as it gives the students a little insight into the various industries in Waterloo.

One of the agencies of our society which we have entrusted with the responsibility of passing on to succeeding generations their integration to these social groups toward better community living is the school. The school should rightfully be the agent to bring maturing students into contact with their own community, which makes up these social groups. This orientation should be done, as was stated above, before these students leave the confines of the school.

### A Vocational Window

As a concrete example of an experiment along this line, an activity was formulated, planned, carried out, and evaluated last year in the public schools of the city of Waterloo, Iowa. This experiment is one approach of many that it is hoped may be of some help to other communities desiring to do something similar. As this is a plan which can be modified to suit individual community needs, we believe it has values for other communities. Both the educators and the businessmen of Waterloo had wanted for a long time to try having high-school students visit local industries, not merely as sightseers but to gain some understanding of community life. In the spring of 1953 the two groups met together to plan an activity of this type involving graduating high-school seniors. The plans involved 550 seniors of five high schools in a city of 65,000.

Many community groups participated in the formulation of "Know Your Waterloo Day." The original credit for the idea goes to the Chamber of Commerce and educators. The school system's director of industrial education sent out letters explaining the idea to 36 firms which had previously participated in Business-Education Days for the teachers. From the 36 firms contacted, 29 responded favorably to the idea.

There followed a series of meetings of school administrators to work out details. It was decided that the school system should be primarily responsible for carrying out the project. Therefore, school administrators formed a central planning committee to develop the activity to a successful conclusion.

Close contact was kept with the participating firms. The first question asked was the number of students that each firm thought it could handle. After this information was assembled, allotments of the number of students to each business were made and okayed by the respective firms.

Each high school was made responsible for orienting its own students to the purpose of this visitation. Each school was responsible for individual assignments of firms and transportation to and from these firms. Each school was to be responsible for a follow-up evaluation for each of its students after the visit was over.

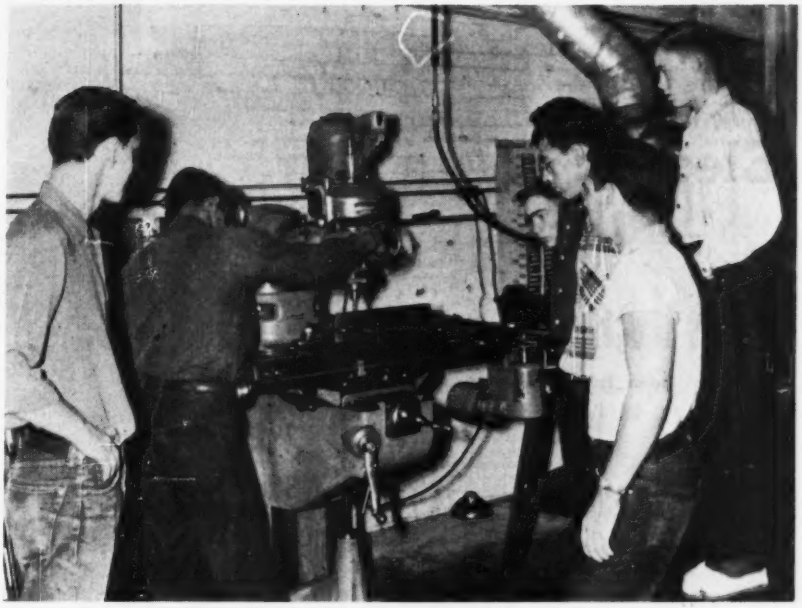
Then the planning committee provided each business establishment with a list of students who would be visiting it. The students then, during a regular school day, made the visitations with some of their teachers. They toured each company and were given opportunities to discuss and ask questions on what they saw with the business and industrial men themselves.

Each student participating was given a folder containing a short review of the American business system and different points to look for during the visit. These included: the interdependency of the firm, the community, and the country; the varied types of employment and necessary training; the utilization of the finished product or service; the processes used in manufacturing the products; the labor-management teamwork; the product or service provided; the number of employes and size of the payroll; taxes paid and other business financial problems; company earnings —use and distribution; and the firm's part in creating a better Waterloo. These objectives were given to the students in advance to focus their thinking on specific points during the visitation.

The classroom evaluation followed. The central planning committee met again to analyze the results of the activity and to discuss future visits. Letters of thanks and requests for constructive comments were sent out to the participating firms. It should be noted here that Waterloo's parochial schools were included in the planning and were kept informed of the developments.

### What the Students Learned

The general objectives of this project are summarized here. First, the students gained a better understanding of how the community's work is carried on. Second, they were shown how a geographic area of 100,000 people can live harmoniously. Third, they were shown how individual firms, through their service and production, contribute to the general welfare of Waterloo, the nation, and the world. Fourth, they were shown the many and varied vocational opportunities in their own home community. To summarize, these goals did, of course, further two of the school's main objectives—training our children to be desirable citizens and workers and to be interested in the future of their community and nation.



Students get a first-hand view of vertical milling machine and operator in action in a local industry on "Know Your Waterloo Day" sponsored by schools and industry.

Some time was spent by the planning committee in evaluating the worth of this project. They were most concerned with whether or not it should be continued as a valid educational method. No direct answer was found, but random individual samplings and group opinions showed varying degrees of value—all of which pointed toward a continuance of the project in some modified form.

As an example of the response from business, one businessman said: "It is our responsibility to assist in the education of youth so that they may understand our industrial society." Other similar comments were very favorable and stated that it was a worthwhile activity. Many businessmen offered helpful suggestions for improving the program.

During the tour the students themselves seemed very impressed with working conditions as they were found. They saw the mixing of races and sexes in various occupations. Some of the students wrote comments on the tours for their school papers, some of which follow:

"I was amazed to see the machines used to bend heavy metal plates into useful shapes in operation."

"I gained a better idea of the workings of a hospital and a realization of the relatively low cost we pay for service a hospital renders."

"I never realized that Waterloo had a company that builds cement pipe machinery for sales in the United States, ranging from Long Island to Oregon."

"I now have a better understanding of law practices and processes and a greater appreciation of the law which protects us."

"It was very interesting to see big business in operation and to find out the benefits offered by large industrial concerns."

"I never realized how much work is required to bring a bottle of milk to my doorstep every morning."

"Through our tour of the bank, we learned the way in which every person directly or indirectly is connected with and dependent on the bank."

In the final analysis, the central planning committee of educators and the businessmen involved believed that the project was well worthwhile and should be continued. It gave the students an opportunity to witness at first hand the various aspects of a thriving industrial community at work before they left the schools to become full-time participating members of this community.

In addition, this project gave them information with which to evaluate and discuss their futures with their friends, parents, and teachers.

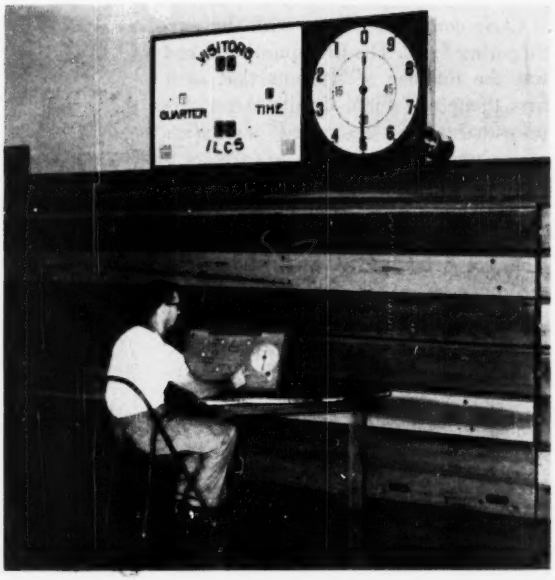
We in Waterloo believe that this one-day's activities definitely promoted for the schools, future citizens, and businessmen a better understanding of the community and world in which we live. From a social and vocational standpoint, it is a worthwhile educational project. ★

**The whole school will benefit from this simple, inexpensive**

# Electric Scoreboard Clock

*By Russell Barrowman*

Indian Lake, New York, Central School




The large scoreboard clock and the electric clock in the control box below are connected by five-wire cable.

THE electric scoreboard clock illustrated here was invented and constructed in our industrial-arts department. It is a companion piece to the selsyn-operated scoreboard unit shown with it and described in the September, 1950, issue of SCHOOL SHOP.

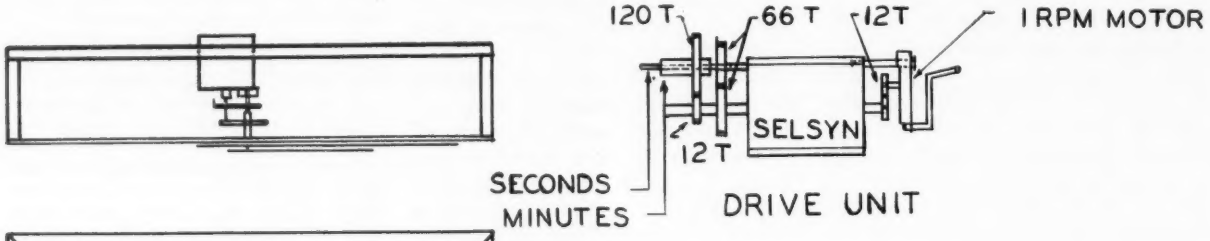
This clock is simple in construction, so it can be built and placed in operation in a short period of time. Machine-lathe work on shafts and the job of painting numerals take most of the builder's time.

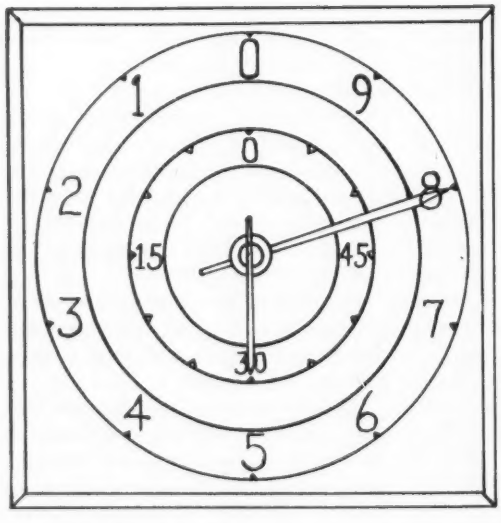
In order to insure the educational values of this project for our students, job opportunities were given to several boys in the shop classes to enable them to have a part in its construction. Also a great deal of preliminary planning and design was carried out in the drawing class so that the clock, although simple, would function as an accurate, dependable timepiece which could be easily seen and operated in the gym.

The unit consists of a selsyn-operated control clock and a scoreboard clock connected together electrically by a five-wire cable. The driving mechanism is a 1 rpm synchronous electric motor obtained from the oven timer of an old electric stove. The matching drive gear was obtained from a burned-out timer and soldered to the shaft at the base of the control selsyn. This motor turns selsyn shafts for the second hands.

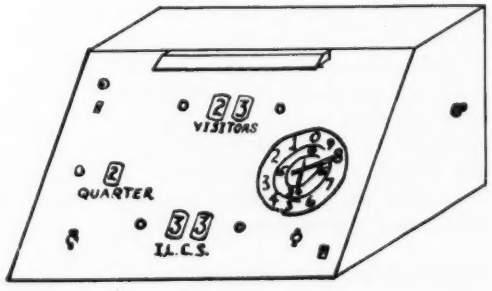
To obtain gears to drive the minute hands 1/10 revolution, shafts and sleeves were used (as illustrated in the sketch) to mount 12T and 120T gears, which gave the 10:1 ratio. A duplicate set-up of the gears was made on the large clock selsyn and the motors were connected

(*Continued on page* 25)

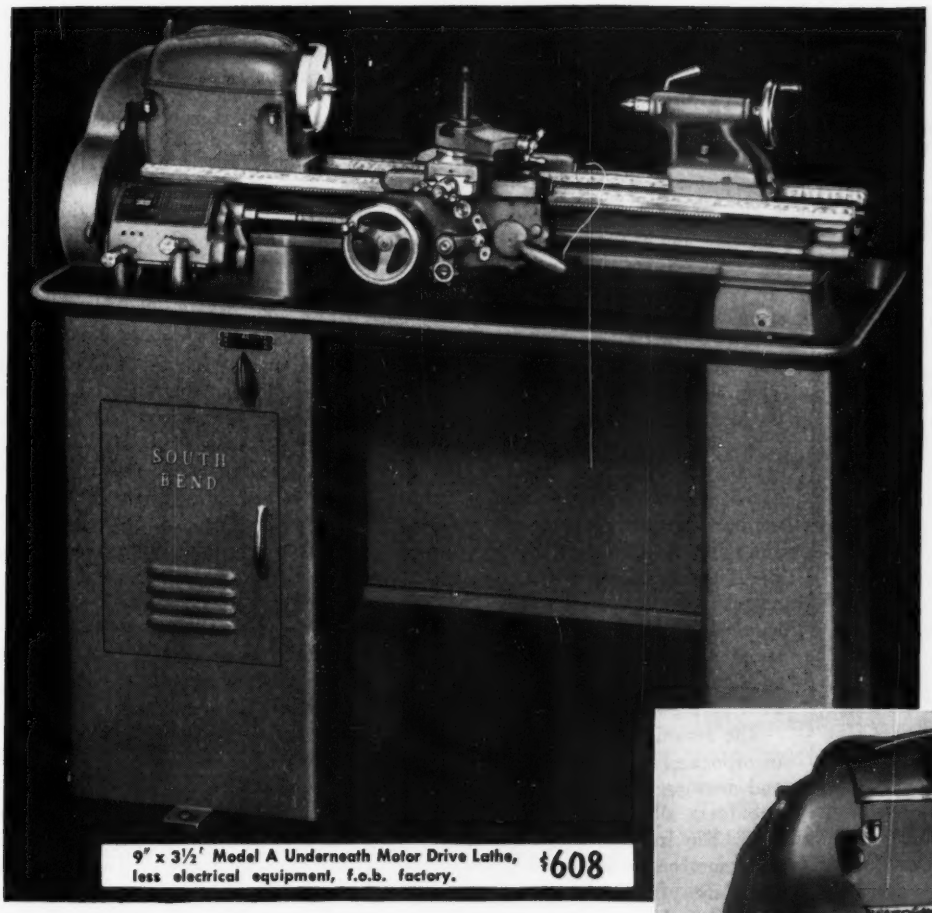



SCOREBOARD CLOCK




CONTROL BOX




9" x 3½' Model A Underneath Motor Drive Lathe, less electrical equipment, f.o.b. factory. $608

# The Ideal Lathe *for School Shops*

This 9-inch swing South Bend Precision Lathe is small enough for the Junior High School boy to handle with ease, yet it has ample capacity for most shop projects. Ruggedly constructed for industrial service, it will withstand the abuse of student operation. Neat and compact in design, it presents an excellent appearance in the shop, and is economical of floor space and power. A built-in chip pan catches shavings and prevents the shop floor from becoming littered.

All gears, belts, and pulleys are fully enclosed. The motor and driving mechanism are built into the cabinet base under the headstock. Neither the end gear guard nor the cone pulley cover can be opened until driving power is disconnected. This, and other safety features, make the lathe almost foolproof. See illustration at right. Patented design.

B
A
C
This position of lever unlocks gear cover (A), headstock cover (B), and disengages motor drive (C) even if electric power is left on. Access is possible to gears (at A) or headstock belt drive (at B) only when these parts are not moving.
With lever in this position, the gear cover (A), and headstock cover (B) are locked in their closed positions, and the motor drive (C) is engaged.

Can I get it? When? How?

Yes—you can get most any South Bend product immediately from our distributor's stocks in principal cities. Items not stocked, shipped promptly from factory.

*Three ways to order:*

1. See or telephone nearest distributor.
2. Order by mail from your distributor.
3. If no distributor is nearby, order direct from factory.

*South Bend machine tools with accessories may be purchased on convenient terms up to 18 months.*

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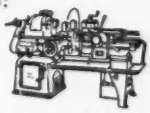
☐ 9" and 10" BENCH LATHES

☐ 10" to 16-24" FLOOR LATHES

☐ DRILL PRESSES


☐ ½" & 1" Collet TURRET LATHES

☐ TOOL GRINDERS

☐ 7" BENCH SHAPERS

Name_____ School _____

Street_____ City & State_____

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Teachers get writers' cramp . . .

# But the Records Go On and On!

*By Estell H. Curry*
Jefferson Intermediate School
Detroit, Michigan

SHOP NO. 13

Williams — Robert — John
Last Name — First — Middle

121 — II — 12
Home Room — Hour — Age

2466 Alexandrine
Address

Paper route (14) — 6
Part Time Job — People in Home

Charles — Vivian
Father's Name — Mother's

Lathe operator
Father's Work

Housewife
Mother's Work

Waycross, Ga., Poe, Bentley, and Franklin.
Schools Attended

Safety Record

Reading comics, watching TV, riding bicycle, building model planes.
Hobbies

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | | | | | | | | | | | 1 | | | | 1 | | | | | |
| T | | | | | 2 | | | | | | | 5 | | | | | | | | |
| W | 1 | | | | | | | | | | | | | | | | | | | |
| T | | | | | | | 2 | | | | | | | | | | 6 | | | |
| F | | | | | | | | | | 3 | | | | | | | | | | |

The front of the card has a concise listing of the student's shop number, his personal information, and shows his attendance for the term.

THE endless record keeping that plagues industrial-education teachers is time consuming and often involves much overlapping and duplicating of effort, both on the part of the teacher and the students. Careful study of the problem can result in a simplified method to keep the same information, yet one that whittles down the record keeping to a minimum of time.

In a recent check, it was found that one school used:

1. A special enrolment card that was made out by each student and used by the teacher for taking attendance. These cards were made out in *every* class.

2. A roll-call book which listed the names of all students alphabetically and according to homeroom groups. Absences and tardiness were also listed here.

3. A progress chart which showed the progress and projects completed by students. There are many kinds of these charts, but all of them involve producing, mounting, and recording the students' names and work accomplished.

4. A personal inventory form which was filled out by students under the teacher's direction. This form helped solve personal problems occurring with individual youngsters.

5. A seating chart which was used for roll call and in identifying students when they were seated in the instructional area.

The writer, working with other teachers in the school, believed the system could be simplified so the teacher would not have to make out three sets of forms and the students two. After proper study, the group devised a new type of cumulative-record card which efficiently handled the same information and saved a great deal of time previously spent in keeping the numerous records used by the school.

The resulting cumulative-record card incorporated the needs of various shop and drawing teachers and combined on one form all of the forms previously used. The front provides the student's shop number, personal information, and attendance. On the back, there is space for listing the student's progress in the course and for three report-card markings.

Here is how these five listings are used.

Shop numbers are assigned alphabetically according to the student's last name. There is one exception to this rule. Students who have handicaps in vision or hearing are given the first few numbers so they will be seated in the front row.

Personal information items were carefully chosen to give teachers the most pertinent information.

If a student has a *part-time job*, it usually means that he is industrious or his income is necessary to supplement the family income. The *number of people* in a home will indicate overcrowding or poor living conditions. The *father's work* will indicate the family income. If the *mother is working*, it shows a need for additional income and also the possibility that the student is on his own a large share of the time.

The number of *schools attended* will alert the teacher for a possible retarded student. (The number of schools some students have attended before reaching the ninth grade is astounding.)

The *safety record* is left blank. If and when a student has an accident, it is recorded, no matter how trivial. And the listing under *hobbies* may show that the student often spends his time walking the streets, listening to the radio, watching television, or reading comic books. From this, a teacher is able to determine which students may need additional counseling.

Attendance in the shop and drawing classes is recorded by the record clerk under the teacher's supervision. When a student is absent, it is indicated by placing the total number of times he has been absent after the day of the week and under the week of the semester.

Example: If a student is absent the first time on Wednesday of the second week, a number 1 is placed after the *W* and below the 2. If the student is absent the second time on Tuesday of the fifth week, a number 2 is placed after the *T* and below the 5. From this, a teacher is able to tell the total number of times a student has been absent by glancing at the last date noted. (Tardiness is indicated with a *t*.)

The most common method of record-

(*Continued on page* 19)

STUDENT PROGRESS

| NAME OF JOB | | | | |
|---|---|---|---|---|
| Rod Holders | 16 | | 16 | OK |
| Hot Pad Holder | 23 | | 39 | OK |
| Bell Circuits | 19 | | 58 | OK |
| Glazing | 14 | | 72 | OK |
| Record Clerk | 33 | 1 | 105 | OK |
| Salvage Material | 18 | 1 | 123 | OK |

1st — 2nd — Final

B. B. ..... ..... ..... .....

On the reverse of the card, space is available for three report-card markings and a student progress report with points earned for each job.

FOR THE MODERN SCHOOL SHOP

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every part newly designed to minimize vibration, promote smooth, accurate cuts. Big capacity . . . handles wood, metal, plastics.

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massive construction with 10-lb. cutter head . . . 42" table, 32" x 4½" fence.

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Ball bearing construction . . . 36" capacity between centers . . . lever controlled bed locks . . . 60-hole indexing system . . . four speeds.

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biggest head, exclusive floating drive, sealed-for-life ball bearings and other exclusives make this today's finest drill press value.

You'll find ATLAS woodworking tools in school shops all over the world, just as you'll find them in leading industries everywhere. And wherever they are used there is complete agreement that, for VALUE, ATLAS Power Tools are unsurpassed. They give you heavy-duty, precision performance . . . the kind of long, trouble-free service that repays the modest initial investment over and over again.

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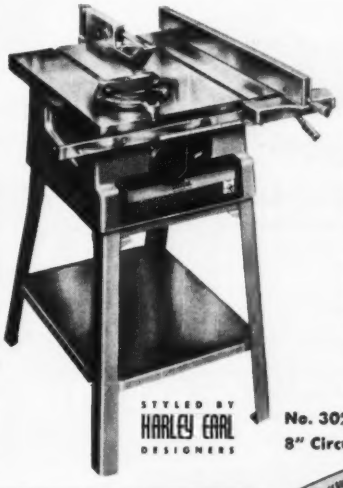


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# School Shop KINKS

Payment will be made for each Kink published. Send to Editor, School Shop, Ann Arbor, Mich.

### Rubber Stamp Suggestions

I believe that a mechanical drawing instructor should not place marks all over a drawing that a student may have spent days or even several weeks in preparing. For a number of years I have used a special rubber stamp to indicate on the back of each drawing the student turns in my suggestions for improvement.

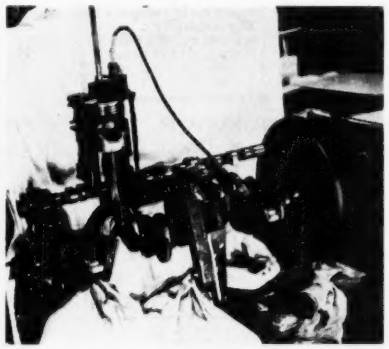
This stamp, titled "Practice," has 21 lines listing various details that may need improving. These include such things as arrow heads, lettering, lay-out, arcs and circles, invisible lines, horizontal, vertical, and center lines, dimensioning, placing of views, blocking out views, inking, border lines, neatness, sharpen pencil, measure with scale, see instructor, etc. The last line is for approval.

By checking on the dotted line after the various items, I can inform the student how to improve the unit of instruction on the next problem turned in.

This, it seems to me, is a positive attitude for the student's effort, as well as giving consideration for his work. I know it has encouraged my students to do better on each new problem.—*Walter P. Busch, Woodrow Wilson Junior High School, San Diego, Calif.*

### A Useful Skeleton

To illustrate general design, valve and ignition timing, and oil passages in my auto mechanics classes I use a skeletonized arrangement of the interior moving parts of the engine, as shown in the photograph below.



The parts are mounted to move freely and the assembly is on a large roller bearing to permit easy reversal of position.—*Hensel M. Miller, George Washington High School, Alexandria, Va.*

### Facsimile Antique Hinges

In our arts and crafts classes we have made excellent copies of antique *T*, *H*, and other hinges by combining butt hinges with dummy escutcheon plates.

The escutcheon pieces are cut from heavy sheet aluminum or lead, 1/32" to 1/16" thick. The front surfaces are then peaned with a ball hammer. These plates are attached to the project with either round-head screws or small nails. The screws should be filed about the head to make them look hand-wrought.

The finish may be a coat of flat black paint or enamel, rubbed lightly with fine steel wool to bring up the highlights. A final coat of thin varnish or lacquer will give a durable finish.—*William O. Bruehl, Lynn, Mass., Trade High School.*

### "Wiggle" for Safety

For several years we have known that safety was promoted when a red line was drawn on the floor to mark a danger area around machines in the shop. I have found that instead of making this line with a straight edge, it is much more effective to make it free hand with a "wiggly" pattern.


Starrett

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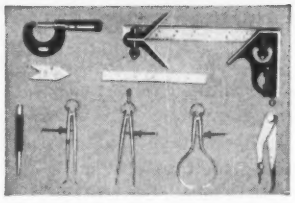

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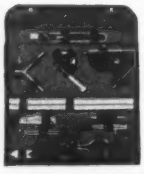
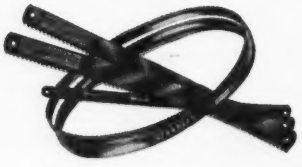
STARRETT SET OF TOOLS No. 902B



The essential measuring tools for modern class projects. Includes 1" micrometer, combination square with center head and 12" blade, center gage, center punch, 6" flexible steel rule in pocket case, 4" divider, 4" inside caliper, 4" outside caliper and 4" hermaphrodite caliper—in a compact folding case.



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**BLOOMINGTON, ILLINOIS**

Not only do students notice it more readily, but students who cannot paint a straight line have little difficulty in painting a snake track.—*Elvin M. Hunter, Eldon, Missouri, High School.*

---

**Records . . .** *from page 16*

ing completed work on the Student Progress portion of the card is to have the student record clerk list the jobs as work is completed. Points earned for each job are placed in the first column and a running total listed in the third column. After points are recorded, the instructor initials the card in the fourth column.

At the bottom, space is provided for scholarship and effort marks. These marks are determined cooperatively and students are allowed to list their own markings in pencil. The teacher later checks the marks and records them in ink before listing on the student's report card.

To keep completed cards uniform and neat-appearing, it was found that it was not advisable to have the students place the personal information directly on the cards. Instead, a hectograph copy of the original was made and students filled in information on these sheets. The copies were also used the first few days of school to record attendance and other information until the cumulative-record cards were made out. Student assistants transferred the information from the hectograph sheets to the permanent cards.

Although the cumulative record was developed primarily to eliminate some of the problems involved in keeping records, it was found that it is a great aid in keeping roll-call books, progress and seating charts. If a student moves away, the card is removed and placed in a file. If he should return during the same term, it is a simple matter to reclaim his card and place it in the active file. And the handy size of the cards makes it easy for an instructor to keep them in his pocket when it is imperative that he have the listings with him.

Streamlining record keeping has made the task much more pleasant and created a much better attitude toward the detailed jobs in the school where it was put into effect. It is believed that this system is an excellent way to solve the ever-present problem. ★

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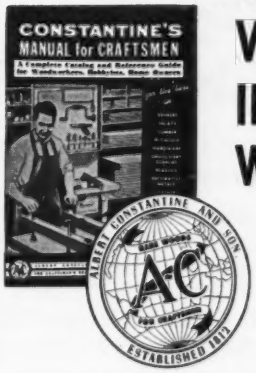


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# News

HAPPENINGS IN INDUSTRIAL EDUCATION

## AVA Group Insurance

THE American Vocational Association announces it has obtained for its members a group disability insurance plan. The plan provides five-year benefits for accidents and two-year benefits for sickness. The AVA states that the insuring company has agreed to accept all members regardless of medical history provided 50 percent of AVA members enroll.

The insurance program will become effective on June 1, 1954, unless a member requests a later date to coincide with the expiration of present policies. Full information can be obtained from American Vocational Association, Inc., 1010 Vermont Ave., N.W., Washington 5, D.C.

## Expand IE Program

THE Lackawanna, N. Y., Board of Education has approved plans for expanding the high-school vocational and industrial-arts program. The new building will include a machine shop of 3400 sq. ft., automotive and general metal shop of 2400 sq. ft., and an electrical shop of 1840 sq. ft. In addition, a lecture and visual-aids room will be provided for use by all shop classes, and a graphic-arts room will house classes in printing and related subjects.

## New VE Act

THE Georgia state legislature, by unanimous vote, has passed a new vocational-education act bringing vocational education under control of the state board of education. The state superintendent will also act as chief officer of vocational programs.

## A Short-Sighted Attitude

PROSPECTIVE military service is the reason why many young men are not now planning careers in industry, according to W. F. Patterson, director, bureau of apprenticeship, U.S. Department of Labor.

Speaking at the annual apprentice graduation dinner of the Textile Machine Works, Polytechnic Institute, Wyomissing, Pa., Mr. Patterson stated, "Unfortunately, young men just out of school feel that since they may be called into the armed forces, there is little point in planning a career in industry." Mr. Patterson termed this a "short-sighted" attitude. He advocated beginning apprenticeship at an early age so young men will have made a start and will have something worthwhile to return to.

## New Shop Building

PRELIMINARY plans for a shop building at Arsenal Technical High School, Indianapolis, Ind., have been approved by the board of education. When completed, the new building will provide space on three floors for 24 shops.

### Convention Calendar

**Wisconsin Association for Vocational and Adult Education,** Wausau Hotel, Wausau, May 7-8.

**Utah Industrial Arts Association Spring Convention,** Hillside Junior High School, Salt Lake City, May 8.

**Georgia Vocational Association,** Biltmore Hotel, Atlanta, June 10-11.

**Pennsylvania Vocational Conference,** Eagles Mere, Pa., June 15-18.

**Colorado Vocational Association,** Colorado A & M College, Fort Collins, June 21-25.

**Conference on Cooperative Education,** Ohio State University, Columbus, Ohio, June 28-29.

**International Graphic Arts Education Association Conference,** University of Colorado, Boulder, July 4-8.

New "DYNO-MITE"

POWER WOOD BITS

Stay sharp 10 times longer — even cut through screws and wire nails

Still going strong after boring through 15 ft. of hard maple, 188 screws, and 376 wire nails! That's the remarkable record of a *single* "Dyno-Mite" Bit used to prepare demonstration blocks like the one shown above.

The secret? "Dyno-Mite" Bits have *high-speed steel blades* — yet they cost no more than ordinary, tool-steel bits. They cut clean and fast in cross or end grain — start readily even at angles — stay sharp 10 times longer.

Order a set of "Dyno-Mite" Bits from your supplier and see for yourself why these remarkable new bits are revolutionizing power boring in any kind of wood.

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6 SIZES

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Available separately or in sets of 6 or 4 complete in handsome plastic rolls

All shanks fit 1/4" chucks

Depth of cut: 5"

12" Extension available

# IDEAL SHOP UNIT

*keeps bits readily at hand*

### *13 "GREENLEE 22" SOLID-CENTER AUGER BITS IN METAL HOLDING PANEL*

Here's the handy, complete auger bit set designed especially for shops. Provides a practical assortment of bits and keeps them in order for you.

Panel has a holder for each bit with size clearly marked. Makes it easy for students and other workers to select the bits they need . . . *then return them to their places* so the next user knows where to find them!

Set includes 13 famous "GREENLEE 22" Solid-Center Auger Bits in sizes 4/16" to 16/16". These bits bore smoothly, accurately and have solid-center design which gives extra strength and provides positive, fast chip clearance. All are "Induction Heat-Treated" for uniformity, long life.

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# A JIG SAW THAT FREQUENTLY DOUBLES FOR A BAND SAW

## The Boice-Crane HEAVY DUTY 24-INCH JIG SAW

Here's a saw that was designed with the school shop in mind. A Kansas owner writes us that he thinks it's "great." From St. Paul comes the compliment that it's a "marvelous piece of engineering and a pleasure to work with." A Detroit owner writes, "still in perfect condition after more than eleven years of hard service." And so it goes . . . most everyone knows that the Boice-Crane jig saw offers many advantages, such as—

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- - - throat capacity equal to a $600 band saw.
- - - saws 5-inch thick stock like a band saw, not just 1-inch or 2-inch like most 24-inch jig saws.
- - - super-efficient guides and smooth stroke for fast, accurate, clean contour and straight cutting, inserted blade work, die filing, saber sawing and sanding.
- - - 20" x 20" precision ground, highly polished cast iron work table, in size equals that of $500 band saws. Tilts 45° two ways.
- - - so versatile, so adaptable it chucks and tensions every blade just right from tiny 1/16" fret to heavy duty ½" band saw type blades. Accommodates blades 5" to 9" long. Two adjustable blade guides. Guaranteed plumb cuts to face of work!
- - - blades rotatable 90° for ripping long stock.
- - - 50% longer stroke (1½") than other 24-inch jig saws.
- - - splash lubrication. Ball bearing crank-shaft. Powerful dust blower.
- - - saws, files, edge finishes wood, metal, plastics.
- - - overall size: 39" high, 20" wide, 38" deep.

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Just look around you for

# Visual Aids

*By Otto E. Ursin*

Mankato, Minn., State Teachers College

MOST shop teachers think of visual aids only as materials which they can use with the motion-picture or other types of projector. It is true that such aids are valuable in many teaching situations but there are literally hundreds of other aids available to us.

The field trip was used as an aid to learning even as early as the time of Aristotle and Socrates. It was a favorite practice for both of these men to give instruction, using the field-trip method. When students lay out a baseball field, visit a hobby house, observe the variety of architectural styles of the homes near school, or study types of lumber obtained from the trees on or near the school grounds, they are using instructional aids.

Graphic aids are an inexhaustible source of teaching materials. Road maps, weather maps, posters, photos taken by teachers and students, pictures from magazines and newspapers are aids that are available to everyone. Do we use them to full advantage?

Commercial models and objects are helpful, but substitutes can be made for them. If the school cannot afford to buy these aids, we have to do something about it ourselves.

Collections of tree leaves and wood samples are available in most communities. There are always materials of some type available even though they may not be obtainable in large quantities. A collection of the various building materials used in the community should be easy to get. Semi-precious stones used in the lapidary program may also be used in the science department. Samples of finishing materials are excellent for industrial arts.

Our understanding of visual aids should include all types that we can use in teaching. They need not be costly to have value as teaching aids. Surprisingly, many of our effective aids to learning are very inexpensive or free. Aids of some type or classification are available to every school, regardless of its location or the wealth of the community.

None of these aids are limited to one area of instruction. No one can really say, "I don't have available any instructional aids for my classes." The only limitation on the use of aids is our imagination, ambition, and ingenuity. ★

Many free and inexpensive visual aids are available to the shop teachers, such as pictures and drawings from magazines and daily newspapers.

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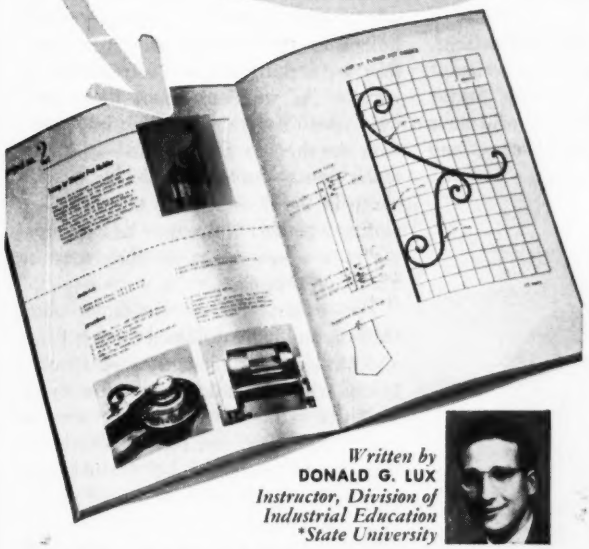
# Projects in Metalworking



*Written by*
**DONALD G. LUX**
*Instructor, Division of Industrial Education*
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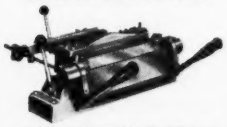
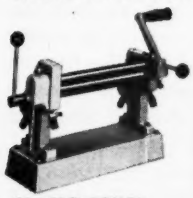


DI-ACRO FINGER BRAKE



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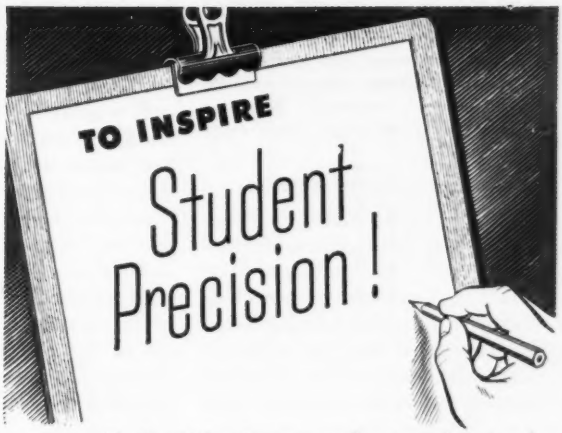


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# Diamond Dust

**Abrasive comments from that doughty Scot, Tom Diamond, former head, Department of Vocational Education, University of Michigan, Ann Arbor.**

## Sartor Resartus

OUR taste in literature has a tendency to lean toward those literary gems which are ubiquitous, which may be purchased for the small sum of 25 cents, and which are commonly described as "Whodunits." However, there are occasions when it seems desirable to depart from the beaten path to the local drug store, and to renew our acquaintance with the authors who stimulated our thinking in our youth.

It was on such an occasion that we reached for a volume of essays which had been written in the early part of the nineteenth century. The author was none other than Thomas Carlyle, a Scot, and one of the most profound thinkers of his time.

As we pawed idly through the volume, we found reference made to a series of essays, the title of which was "Sartor Resartus." You young bloods who have struggled through Caesar, Cicero, and other Latin tomes—with the aid of a "pony"—may recognize the meaning of the title, and we are sure the adolescent who has become concerned about his sartorial embellishments will understand that the author was writing about "clothes."

Carlyle took a broad view of the term "clothes," and included everything with which humans surround themselves. People wear clothes, they clothe themselves with authority, and they build homes to which they can retire when they are seeking rest and refreshment in private. As we read about these various types of clothes we were impressed with the thought that clothes—in a narrower sense—have a particular significance in the lives of shop teachers. The clothes a teacher wears may be appropriate in a school shop, or they may be quite inappropriate.

For example, Sam Smith, a shop teacher, had just graduated from college, and was not yet sufficiently sophisticated to look with a jaundiced eye on the social activities of his Alma Mater. It was not surprising, therefore, that he should return to the scene of his former conquests for the purpose of attending the Junior Prom.

Even at our age we can understand this attitude, as we have been led to understand that youth must have its fling. However, when the last dance was over at 3 A.M. the fair lady who was being escorted by Sam was so stimulated by her experiences that she insisted on attending some of the postdance activities. These lasted well into the morning, which just left Sam time to get back to school to meet his class.

As one can readily understand, Sam was all dolled up in his tails, white tie, and other festive accessories, so it is not surprising that his pupils whispered among themselves, wondering if the teacher had been imbibing in the contents of the flowing bowl. But why should they be disturbed? The teacher was properly clothed—for the function of the previous evening—but certainly not for the work in which he was about to engage.

It is conceded that the illustration presented above is a little unusual, but it suggests that certain forms of dress are suitable only in certain situations. The plum-colored sport coat worn in a school shop by a teacher, and displayed in a recent issue of a magazine, would have been appropriate in a number of situations, but it appeared to be out of place in a machine shop. Similarly, a suit usually worn by a baseball player is appropriate on a baseball diamond,


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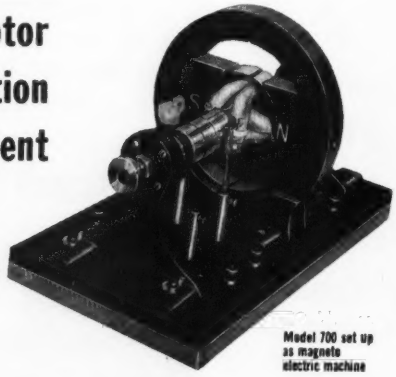

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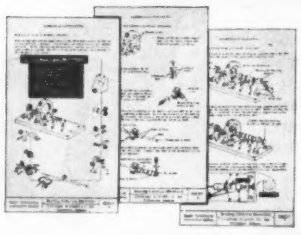

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but it would seem to be inappropriate for a shop teacher to wear when meeting his class.

This raises the question of what constitutes appropriate dress for a shop teacher. No one will suggest that he wear a standard uniform, but whatever he wears should be neat and suitable for a shop environment. No one will complain if the machine-shop teacher has a smudge on his nose, or if the auto-mechanics teacher has grease on his hands, but this does not mean that they cannot appear in an apron or a coat that is reasonably clean.

Many teachers take pride in the fact that their courses follow the practice in industry. These individuals should know that the top-grade mechanic takes as much pride in his personal appearance as he does in the article he produces. If he chooses to grow a mustache no one will complain, but when he appears with a three-day growth of stubble on his chin it does little to enhance his appearance.

One of the means by which young people learn is through the example set by the teacher. If the teacher is neat in his appearance, if he dresses in a manner which is appropriate for the work being done in the school shop, and if he has clean personal habits, he will gain the respect of his pupils, and perhaps some of them will take heed and follow his example. ★

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## Scoreboard . . . . *from page 14*

together with five wires. The wiring was simply all like numbers connected together with 110-v power cut into numbers 1 and 5.

The three-foot main clock was made of a frame of ¾" pine to house the selsyn motor and gears and a 3/16" Masonite face. This makes a light unit which can easily be mounted in any suitable location. The face of the clock was divided into 10 equal spaces so that it could be used for both ten- and eight-minute quarters. Minute numerals 3½" tall were painted black on the white background and second numerals 2½" tall were painted red. The clock is designed to show at a glance the time left to play in each quarter by minutes and seconds.

The 6½" diameter, 18-gage aluminum face of the control clock is a duplicate of the main clock. The numerals were etched in and then the lines colored with red and black enamel. The face, motor, and gears were installed in the control box as illustrated.

Provision was made through the bolt mounting of the electric-drive motor so that its gear could be disengaged from the selsyn and then both clocks could be reset or turned backward or forward by turning the hands. The selsyn power must be left on so that both clocks keep the same setting. A rod, fastened to the drive motor, extends up to a knob on the right side of the cabinet. Pulling the knob pulls the motor out of gear with the selsyn.

The scoreboard and clock unit is so constructed that the scorekeeper and official timer can sit at the control desk at any spot in the gym and have a complete picture record of the game right in front of them. They do not have to be in a position to see the large unit. Players, spectators, and officials can see the large unit from the playing floor. Time is kept with split-second precision by flipping a toggle switch which controls the driving motor.

**Materials List:** Two selsyns; one timer; two gears (G 149) 120 teeth, 2½" pitch diameter, 5/6" hole; four gears (G 145) 66 teeth, 1⅜" pitch diameter, ¼" hole; two gears (G 129) 12 teeth, 1.4" pitch diameter, ⅛" hole.

By using surplus selsyns and the timer from an old electric stove, the parts cost approximately $10.00.

Note: Detailed dimensions of the control box and the scoreboard can be secured from the September, 1950, issue of SCHOOL SHOP. The author will gladly supply additional information. ★

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77230W KRW Ford Linkage Adjusting Tool for 1950.
77230W-123 KRW Ford Linkage Adjusting Tool for 1951, '52 and '53.
77230-A4 KRW Ford Linkage Adjusting Tool for 1954.
77230-MW KRW Mercury Linkage Adjusting Tool for 1950-51.
77230-MAA KRW Mercury Linkage Adjusting Tool for 1952, '53 and '54.
77270W KRW Assy. Throttle Protractor
77288W KRW Control Shaft Tool.
77515W KRW Rear Clutch Spring Compressor.
77530W KRW Clutch Assy. Fixture Seal Replacer.
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## Los Angeles AIAA Convention Attracts Over 1000 Teachers

MORE than a thousand industrial-arts teachers registered for the sixteenth annual convention of the American Industrial Arts Association at the Statler Hotel in Los Angeles, California, March 23-26.

Emphasis was placed on making the convention a working conference by dividing the attendants into small groups to discuss problems presented in the general sessions. These groups came up with specific programs which the members could adapt to their own teaching.

Announcement was made of the newly elected officers for 1954-55. Gerald Baysinger of Wayne University, Detroit, Michigan, succeeds Fred J. Schmidt, Jr., of Ball State Teachers College, Muncie, Indiana, as president. Burl N. Osborn of Millersville, Pennsylvania, State Teachers College was elected vice-president. The remaining members of the executive committee retain their positions for another year.

John A. Whitesel of Miami University, Oxford, Ohio, was elected president of the American Council on Industrial-Arts Teacher Education.

The association secretary, Kenneth W. Brown, reported that membership has nearly doubled and that the aim is 10,000 members in the next three years. He stated that there are now 77 affiliated organizations from 40 states and Canada. President Schmidt reported that 264 members acted on committees during the past year.

The association took an active stand in favor of liability insurance for shop teachers to be paid for by the local school board with appropriate legislation to be passed by the various states to make such a step feasible.

Teacher recruitment was also a problem to which the association drew attention at several meetings and through a resolution urging teachers to be active in encouraging promising students to enter the profession.

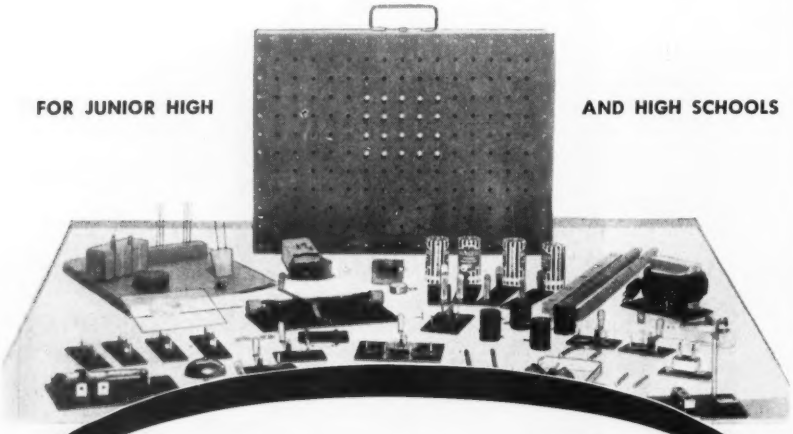
Substandard teacher-training institutions drew the fire of the group, which pledged support to recognized teacher-education accrediting associations in drawing up and enforcing standards for the accreditation of teacher-training programs.

The association also called attention to the lack of understanding on the part of laymen of industrial-arts work and is studying the feasibility of establishing an informational service that would operate through state and local organizations to help remedy the situation. It also urged its members to study ways and means by which the gap between the achievements of science and technology and the common man's knowledge could be bridged.

A committee is being formed by the association to develop comparable record forms for use in tabulating data on industrial arts in each state including information on teachers, students, and course offerings in an effort to secure an accurate picture of the status of industrial arts—information which is now quite incomplete.

Numerous commercial and educational exhibits attracted the interest of those at the meeting. The Ship's program and awarding of prizes was held at the banquet on March 26 which concluded the festivities at Los Angeles. The silver anniversary of Epsilon Pi Tau, honorary fraternity in industrial arts, was celebrated at a day-long program at Santa Barbara College with Alpha-Beta Chapter as host.

The 1955 convention will be held at Atlantic City, New Jersey, on April 26-29 at Chalfonte-Haddon Hall. ★

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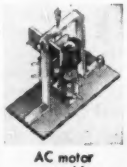

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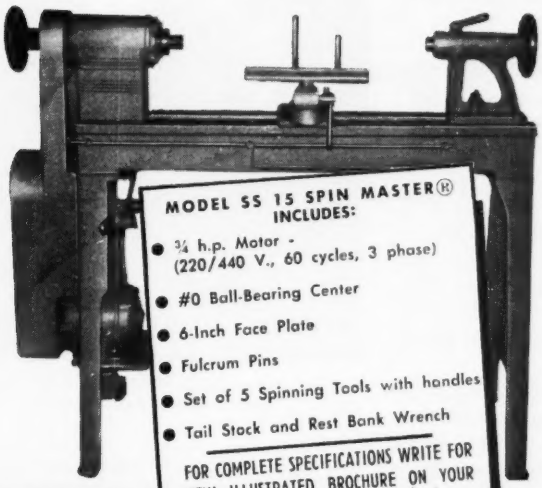

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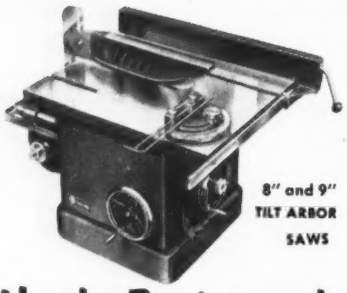

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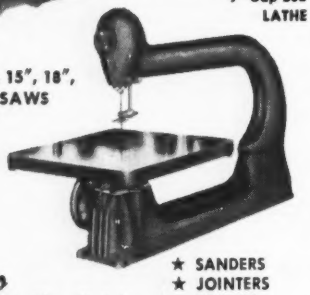

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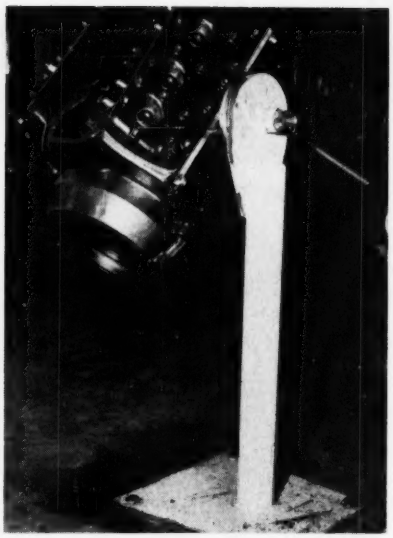
Sequoia Union High School,
Redwood City, California

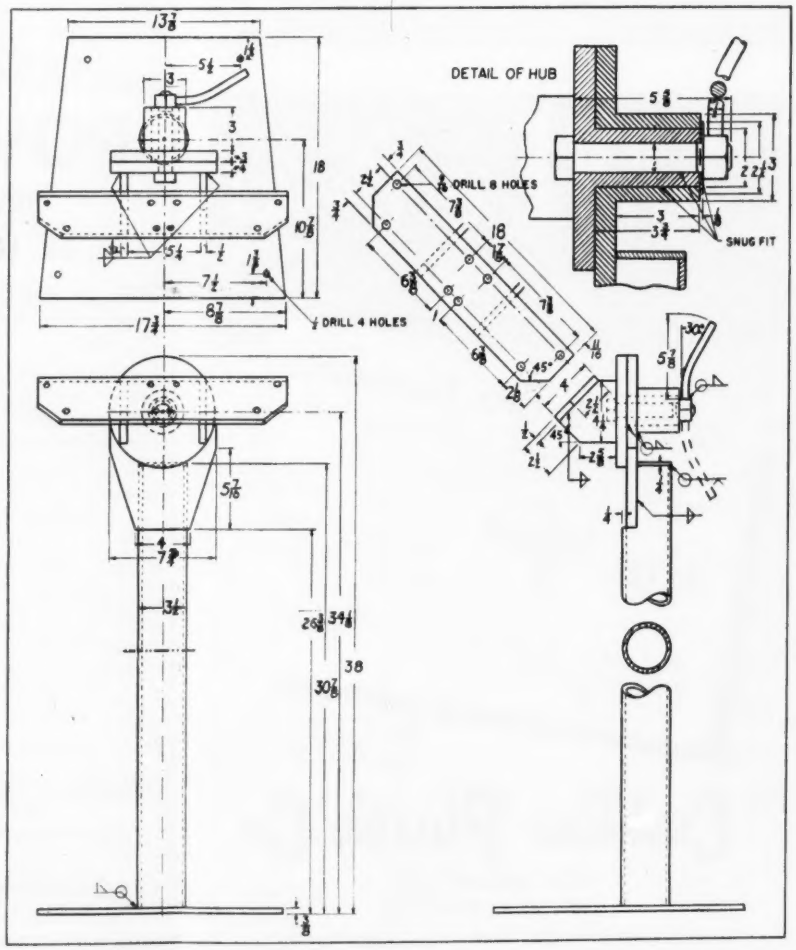



This V-8 motor can be revolved through a full 360° with this student-made auto engine stand.

MOTOR stands are very handy in the auto shop as they enable students to move the motor about and see portions of it that are hard to see when the motor is mounted horizontally. They also help in class demonstrations by the teacher.

We have made several stands like the one shown here and have found them most convenient. Their construction is a good project for the students in welding and machine shop because the job involves laying out, cutting, drilling, welding, threading, and turning.

The material used is all mild steel except where indicated. The cost of making the stand is about ten dollars. We have bolted ours to the floor and then painted them. Our stands have worked out most satisfactorily. ★



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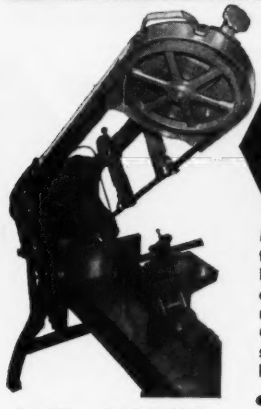

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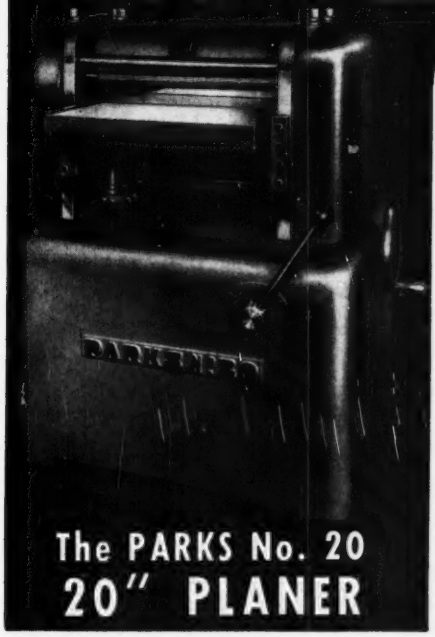

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Students advance quickly on Parks Planers because they find them easy to operate, safe, and accurate. And, since both the Parks 12" and Parks 20" Planers have been designed and precision-built for accuracy and high-speed line production in industry, they are ideally suited for the school shop because they give practical experience on the type of machines your students will eventually use. Both machines are priced low enough for even the most modest shop budget.

The Parks No. 20. 20" Planer has a 4-knife cutterhead with a speed of 3600 R. P. M. and offers two feed speeds—20 and 40 F. P. M., and 40 and 80 F. P. M. Will take work up to 20" wide by 6" thick. Ruggedly built for vibrationless operation.

The Parks Heavy-Duty 12" x 4" Planer. A compact, sturdy thickness planer that offers mill planer precision at low price. Has feed speed of 16 F. P. M. at 4000 R. P. M. Will handle material as short as 6" and as thin as 1/16".

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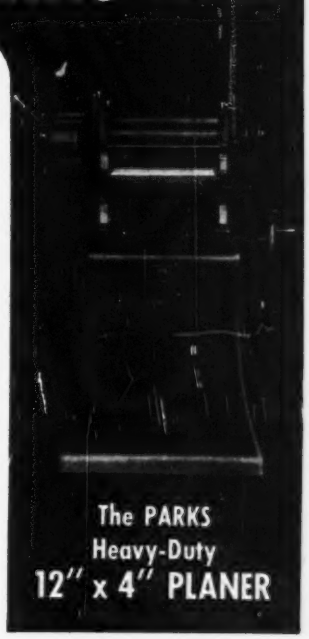

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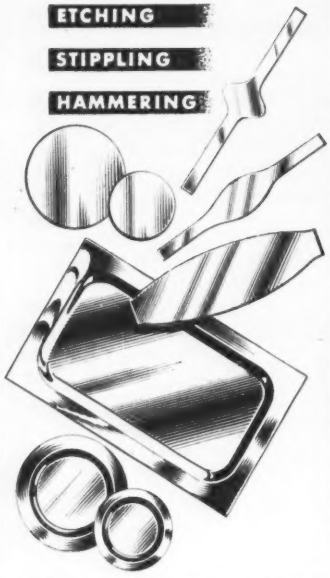

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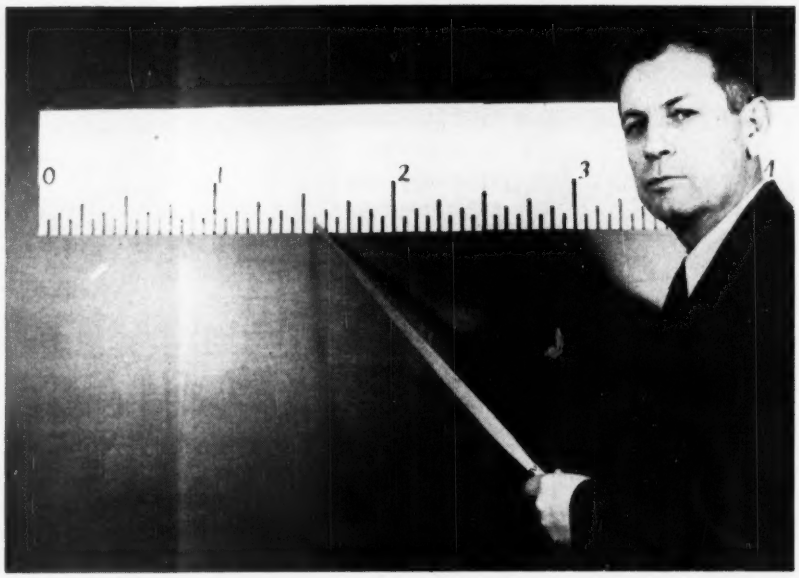

Students—seated at their own desks—carefully watch their rules, squares, and architect's scales as Mr. Rister explains the various divisions between the inch mark on this large visual aid in front of the room. Students also are called to the front to point out fractions.

**This visual aid is a great help in**

# Teaching How to Read the Rule


***By E. Milton Grassell***

**Assistant Professor of Visual Education, Oregon State College, Corvallis**


ONE of the first tools that industrial-arts students should learn to use is the rule. Yet, how many of our junior- and senior-high-school students continually have difficulty in reading fractions on the ordinary folding rule, the try-square, framing square, and the engineer's and architect's scales?

Before the entire class, the teacher can point to the various divisions between the inch marks during a lesson and discussion about laying out tools. But this is not always effective because the graduations are so small that even the students near the front of the room experience difficulty in seeing the minute divisions. A better method is to make a large drawing of the rule on the chalkboard. Then every student can see.

Floyd Rister, industrial-arts teacher at Newberg (Oregon) High School came up with another idea. Since new classes enter each year, the topic of reading and using the various laying-out tools is an important annual issue. Therefore, Mr. Rister concluded that permanent visual aids would be more feasible than the chalkboard in many ways. Here's what he did.

He began with a large black and-white drawing (made in scale) of the rule. It was made on heavy cardboard; however, these aids could be made on ¼" plywood or other materials. Because the more common rules in everyday use divide the inch into 16 equal parts, Mr. Rister started with 1/16" graduations between each inch division on the visual aid. Thus, he was starting with inch-graduations with which his students were most familiar.

The students—seated at their desks—carefully watch their own rules, squares, etc., as Mr. Rister indicates the various divisions between the inch marks on the large visual aid hanging in front of the room. During the lesson, students are called to the front of the room to point out various fractions to the class.

The results from this visual aid were so gratifying that Mr. Rister has made additional visual aids to illustrate other fractional divisions between the inch marks on the framing square and on the engineer's and architect's scales. After completion of the unit the visual aids can be easily stored until the new school year begins. ★

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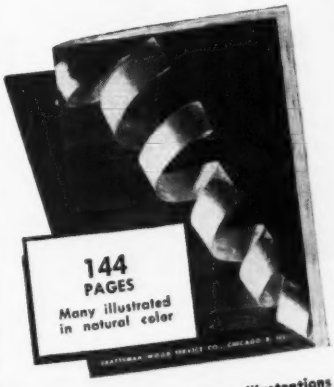


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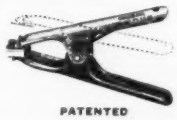

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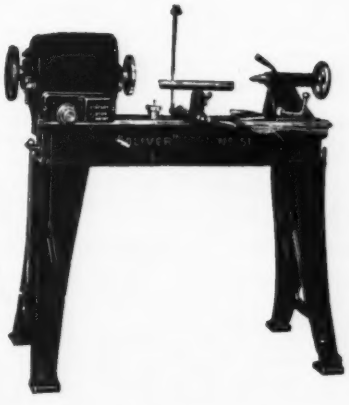

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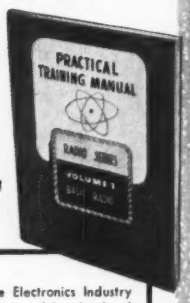


Developed with the cooperation of the Electronics Industry and the help and advice of hundreds of Radio Shop Instructors and educators.

**36-LESSON SECTION:** Basic Electricity • Technical Terms • Circuits & Symbols • Parts Identification • Ohm's Law • Kirchhoff's Voltage Law • Kirchhoff's Current Law • Watt's Law • Cells and Batteries • Magnetism • Electro-Magnetism • Relays • Meters • Meter Construction & Use • Use of Volt-Ohmmeter • Soldering Techniques • Capacitor Construction • Alternating Current • The Capacitor • Resistance-Capacitance • Electro-Magnetic Induction • Inductance, Impedance, etc. • Transformers • Pulsating DC • Vacuum Tube Construction • Vacuum Tube Characteristics • Grid Bias • Voltage & Current Measurements • Power Sources • Rectifiers • AC-DC Power Supply • Voltage Doublers • Transformer Type Power Supplies • Resonance • Oscillators • Principles of Radio Transmission and Reception.

**13-PROJECT SECTION:** Color Code • Circuit Symbols and Technical Terms • Ohm's Law Applications • Kirchhoff's Laws in Application • Soldering Practice • Capacitor Construction & Capacitive Reactance • Inductive Reactance • Vacuum Tube Construction • Tube Characteristics Curves • Crystal Receiver • Construction of AC-DC Power Supply • Construction AC Power Supply • Construction Audio Amplifier.

**The BASIC RADIO MANUAL is a comprehensive 200-page teaching guide, outlining step-by-step a 36-Lesson Course on Basic Radio, accompanied by a practical Shop Project section demonstrating theories in action (learning by actual doing). The table of contents which follows is the best index to the value of this planned guide for maximum effectiveness in Radio instruction . . .**

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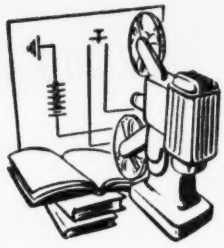
# Instructional RESOURCES



## Books:

**Machine Tool Operation, Part II.** Burghardt and Axelrod. New York: McGraw-Hill Book Co. Pp. vii+676. $5.00.

This is the third edition of a book which appeared originally in 1922. In order to bring it into harmony with modern practice, this edition has been expanded to include chapters on cutting fluids, metal-cutting bandsaws, and the milling and grinding of cams.

The book will be of interest to machinists, and helpful to school-shop teachers who are dealing with advanced industrial-arts pupils, apprentices, or tradesmen who are attending evening classes.

The late Henry D. Burghardt was formerly head of machine shops in the Dickenson High School, Jersey City, N.J.

Aaron Axelrod is instructor of machine shop science and mathematics in the Vocational and Technical High School, Bayonne, N.J.

**How to Use Meters.** Rider. New York: John F. Rider Publisher, Inc., 1954. Pp. iv+156. $2.40.

A practical text, this book reduces to a minimum the theoretical aspects of current and voltage measurement. Its purpose is to serve the needs of those who have a practical interest in the application of a-c and d-c voltage and current measurement.

Every serviceman should have a copy of the book, and shop teachers who include the use of these instruments in their programs will find it a valuable addition to their libraries.

**Metalwork for Students.** Marriott. London: Macmillan & Co., 1953. Pp. viii+222. $2.50.

This book was designed to be used in England with the result that some of the drawings are presented in a different angle of projection from the ones used in this country. However, with this reservation, it provides some worthwhile suggestions for elementary work in a general metal shop, touching on elementary metallurgy, as well as blacksmithing, hand-tool work, and the simpler machines used in a machine shop.

R. Marriott was formerly an instructor at the Nottingham University College, England.

**Graphic Architectural Drafting.** Ray. Bloomington, Ill.: McKnight & McKnight Publishing Co., 1954. Pp. xv+256. $4.80.

Practically all the information required for the designing and building of a home is provided in this book. It is presented by means of drawings in the form of sketches, isometrics, perspectives, and working drawings. In addition there are numerous freehand renderings of exteriors and individual units, such as fireplaces and entrances.

Definite assignment units are suggested, and each of these is accompanied by a series of questions which are intended to direct the attention of the pupils to information related to the problems on which they are working.

Drafting teachers who are responsible for courses in architectural drafting, or other teachers who include a unit on architectural drafting in their courses, will welcome this as a useful text. Lay people will find in it a great deal of useful material if they are interested in building or remodeling a home.

J. Edgar Ray is Professor of Industrial Education at The Stout Institute, Menomonie, Wis.

**Transistors.** Garner. Chicago: Coyne Electrical School, 1953. Pp. 106. $1.50.

This book was written as a guide and reference volume for individuals who are interested in the theory and functioning of transistors. Numerous circuit diagrams are provided to illustrate the principles involved. Every worker in the field of electronics is likely to profit from having it in his library.

## Pamphlets:

**Knifecraft** is a 48-page pamphlet which describes in detail with numerous illustrations the use of the craft knife in model making, paper sculpture, carving, mobiles, silk-screen work, and other art and craft processes. Methods of using the knife and its care are given. Numerous projects are shown. The author, Nik Krevitsky, is a well-known designer and art educator who is on the faculty of the Pratt Institute, Brooklyn, N.Y. Available from the C. Howard Hunt Pen Co., Camden, N.J., for 50c.

## Audio-Visuals:

**The History of the Helicopter** is a 22-minute 16mm sound motion picture which utilizes many historical shots to show the development of the helicopter to its present widespread commercial use, particularly in the oil fields. Available for free loan from The Shell Film Library, 50 West 50th St., New York 20, N.Y., or 100 Bush St., San Francisco, Calif.

**A Directory of 2660 16mm Film Libraries** by Seerley Reid and Anita Carpenter is a city-by-city list of sources from which 16mm entertainment and instructional films can be borrowed or rented. Office of Education Bulletin 1953, No. 7. Pp. 172. Available from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C. $.50.

**Making the Most of the Spray Painting Method,** produced by the DeVilbiss Company, is a 45-minute, 16mm black and white sound movie. It illustrates the four basic principles of spray finishing. A booklet which covers the film highlights is also available. Prints of the film can be obtained from the DeVilbiss Company, 300 Phillips Ave., Toledo 1, Ohio.

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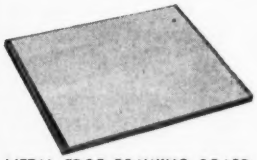

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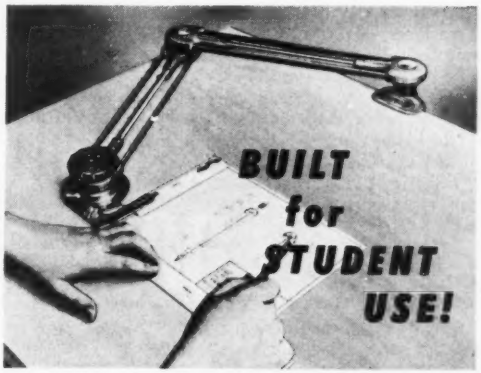


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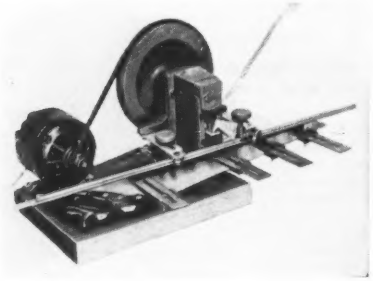
# News from INDUSTRY

(Circle the numbers on the card in this issue to secure the items listed below.)

### Foley Automatic Hand Saw Retoother

According to the manufacturer, the new Model 32000 Foley Automatic Hand Saw Retoother quickly restores any hand saw to like-



new condition. In less than a minute, a V-shaped steel punch cuts away old irregular teeth and forms perfect new ones, either rip or crosscut, of any size from 4 to 16 points per inch. Saw handles need not be removed.

Important features include a dial indicator to insure any desired tooth pitch from 0 to 30 degrees, and the ability to produce either a straight or a crowned toothed edge. Saws travel through the Foley Retoother on the same carriers used by the manufacturer's saw filing machines, eliminating further set-up adjustments.

The Foley Retoother is furnished with choice of hand or motor drive. Hand drive can be converted to power drive at any time. For more information, write Foley Manufacturing Co., Department 60, 3300 Fifth St. N.E., Minneapolis 18, Minnesota, mentioning SCHOOL SHOP; *or circle no. M1 on the business-reply card.*

### Hard Maple Drafting Table Announced by Tolco

Manufactured by the Tolerton Company, a new drafting or art table, Model TD-6, is constructed of northern, hard maple. Both the adjustable and stationary sections of the top are laminated from narrow strips of the wood, electronically glued by the Tolco method. It is also available in basswood or high-pressure plastic laminated tops. All precision cut parts with mortised and tenoned joints are securely bolted for extra rigidity.

Six combination sections are provided in each unit for the storage of drawing boards and instruments. The tilting top measures 28″ x 28″ with a stationary section 10″ x 28″. The overall dimensions are: length 38″, depth 28″, and height 36″.

For a catalog illustrating this table and other Tolerton equipment, write the Tolerton Company, P.O. Box AB 658, Alliance, Ohio, mentioning SCHOOL SHOP; *or circle no. M2 on the business-reply card.*

### 3-D Movie on the Road for Cincinnati Lathe & Tool Co.

Cincinnati Lathe & Tool Company is using what it believes to be the first mobile three-dimension movie "theater" in the world in its campaign for replacement of obsolescent metalworking machine tools. The interior of a display motor coach holds 3-D projection equipment, a screen, and seats for an audience of eight. In addition the coach contains operating machine tools and other exhibits.

A 15-minute 3-D film, "A Way of Thinking," will be shown to vocational school leaders and industrialists-at-large all over the country. The film dramatizes Cincinnati Lathe & Tool engineering and production methods.

### Speedball Announces Nu-J Knives For Arts and Crafts

The Hunt Pen Company, manufacturers of Speedball Pens, announces the distribution of Nu-J Knives which feature a new-type steel chuck handle with new-design knife shapes. They are available in individual packets or sets and the various knives are interchangeable in the handle.

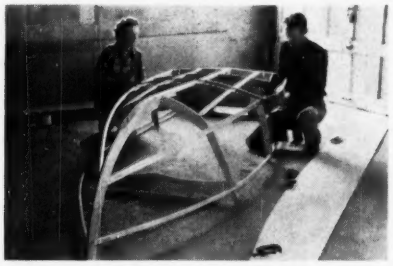
Additional information may be obtained by writing C. Howard Hunt Pen Co., Camden, N.J., mentioning SCHOOL SHOP; *or by circling no. M3 on the business-reply card.*

### Pittsburgh Firm Imports Precious Stones

Ernest W. Beissinger, Pittsburgh stone importer, supplies precious stones to schools on a memorandum basis, without obligation to purchase. Stones are packaged in individual envelopes and, when requested, the country of origin of each stone is included.

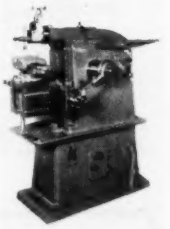
For more information, write Ernest W. Beissinger, 417 Clark Building, Pittsburgh 22, Pa., mentioning SCHOOL SHOP; *or circle no. M4 on the business-reply card.*

### Ready-Cut Boat Kits



Taft Marine Woodcraft produces boat kits which come ready to assemble, complete with illustrated instructions. Common tools are the only ones required for assembly. The company produces kits for 12′ and 14′ sport runabouts, a 12′ skiff, and an 8′ pram. For more information, write to Taft Marine Woodcraft, 636 39th Avenue N.E., Minneapolis 21, Minnesota, mentioning SCHOOL SHOP; *or circle no. M5 on the business-reply card.*

### Swedish Shaper Now Distributed in U. S.



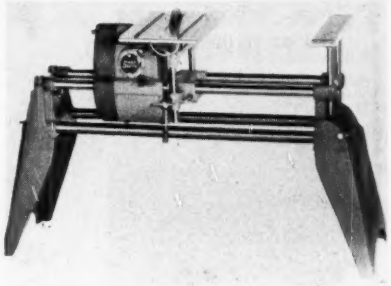
Prema Shapers, manufactured by A. B. Prema Maskiner, Värnamo, Sweden, are being distributed by Austin Industrial Corp., who also handles service and spare parts.

The shapers are available in three sizes with 10″, 11″, or 13″ stroke. They have a solid cast-iron base and one-piece cast-iron column. Drive is by V-belt from a 2 h.p. motor, manufactured especially for U. S. service and fully enclosed in the column through a quick-acting friction clutch.

According to the manufacturers, features include hardened alloy steel gearing, anti-friction bearings on all shafts, generously proportioned cross slide and ram slide, hand-scraped sliding surfaces, adjustable stroke while machine is operating, and a swiveling tool head.

Detailed literature is available by writing Austin Industrial Corp., P.O. Box 430, White Plains, N.Y., mentioning SCHOOL SHOP; *or circle no. M6 on the business-reply card.*

### All-Purpose Tool Has Many Uses



An all-purpose woodworking appliance, the Shopsmith Mark 5, shown above as a saw, has been announced by Magna Engineering Corporation. A complete unit, it is delivered fully assembled, ready to plug in and use as a saw,

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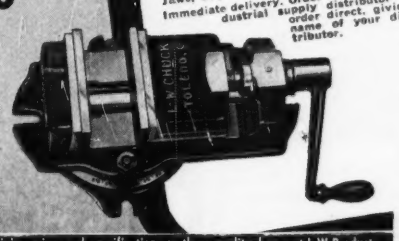

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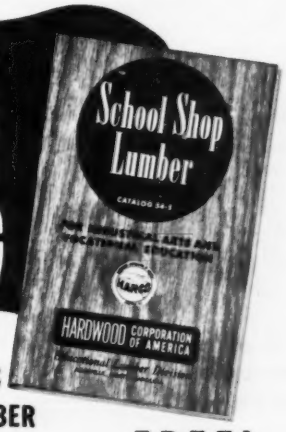


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sander, drill press, lathe, and horizontal drill, the manufacturers say.

According to the Magna Engineering Corporation, Shopsmith Mark 5 offers advantages for school use because it eliminates periodic overloads on particular tools; it is possible to convert an idle power tool to the one that is most needed at any time. The machine is compact, thus saving floor space and it permits use of new teaching techniques because power-tool work stations can be converted from one tool to another, they add.

The Shopsmith Mark 5 has an enclosed automatic drive. The Speed-Dial features a correct speed for each operation, said to be as easy to set as dialing a telephone.

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Additional information may be obtained by writing Magna Engineering Corp., Menlo Park, Calif., mentioning SCHOOL SHOP; *or by circling no. M7 on the business-reply card.*

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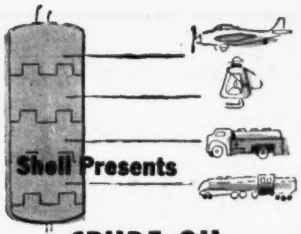


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## Education . . . . *from page 8*

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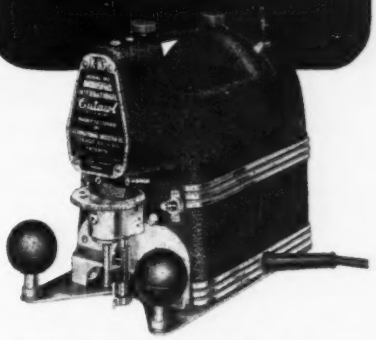

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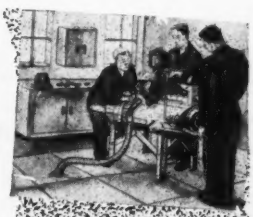

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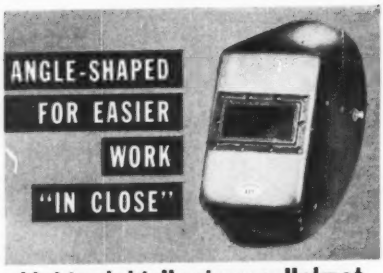


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## Washington . . . *from page 40*

Mrs. Hobby's lawyers looked over the acts passed by Congress since 1917 setting up grants-in-aid, they concluded that their purpose was to encourage states to initiate new activities, as well as to extend and improve existing ones. For that reason, Mrs. Hobby feels that a separate type of grant is needed which she calls "extension and improvement."

It would be up to each state to decide what new ground it wants to break, and to write its proposals into its state plan. The federal lawyers think that each new "extension or improvement" project should get six years of encouragement with federal money. The first two years, the U.S. government would pay 75 percent of the cost of the project; the next two years, 50 percent; the last two years, 25 percent. After that the state would have to pay the entire sum. Says Mrs. Hobby:

"There should be a wide degree of state and local discretion and the full encouragement of local resourcefulness and responsibility."

3. *Research and development projects.* Does a state wish to investigate the need for more skills in servicing electric appliances on the farm? Does another state wish to set up a demonstration project in teaching practical nursing? For such activities, with emphasis on research, the proposed legislation would authorize special project grants.

It is not intended that these grants would be distributed to the states on any pat formula. Rather, the sums authorized (probably no more than 10 percent of the total appropriation) would be held by the federal government until a state came forth to prove its need for the money. "It is quite probable that a state will be asked to contribute a portion of the cost in carrying out a special research or demonstration project," says Mrs. Hobby.

**Goodbye Smith-Hughes and George-Barden.**—So much for the features of the new plan as described by Mrs. Hobby. Nowhere in her analysis did the Secretary let on that the proposed measure would mean the repeal of the Smith-Hughes and George-Barden Acts. Yet, that is precisely what would have to happen. In the scrapping of the Smith-Hughes Act, vocational educators would lose a permanent appropriations law and would become dependent on an authorization act. That means that each year Congress would have to debate anew whether money was to be appropriated, and how much, for each of the three purposes outlined by Mrs. Hobby. Says the Secretary:

"The amounts would vary from program to program, year to year, according to variations in need."

It ought to be made clear that the measure which Mrs. Hobby is planning to place before Congress was not drafted by vocational educators, nor by members of the Office of Education. It is an achievement of legal, fiscal, and political-science minds. Vocational educators will get their first official look at the measure when U.S. Commissioner of Education Brownell invites a group of state directors of vocational education to "go over the bill with him line by line." The invitation has not yet been issued. Because, strictly speaking, there is no bill yet. Mrs. Hobby is still trying to find someone in Congress who will sponsor her ideas and thus bring them to official life.

**Human Relations for the Shop Teacher.**—"Human relations" is a popular phrase in Washington and an educational reporter cannot escape it. Talk to staff members of the U. S. Office of Education, of the Association for Supervision and Curriculum Development, or even of the august American Association of School Administrators and the topic will crop up.

Every time some Washington worthy has mentioned "human relations" we've taken notes. Examining these notations now, toward the end of the school year, they seem to fall into a kind of human-relations decalogue for the school-shop teacher. Without apologies, here it is:

*Teach* so that you give each pupil the satisfaction of success, the certainty of a goal, the security of your affection—for thereby you will strengthen the health of his mind and his spirit.

*Teach* so that you give each pupil opportunities to plan with others, work with others, agree, disagree, and reach decisions with others—to the end that you help each pupil grow toward citizenship.

*Teach* so that each pupil will feel you


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respect him and his work, that you are sensitive to his feelings and ideas—for here is the beginning of the preservation of human values.

*Teach* so that each pupil will see that what he is learning makes sense to him, that it has values now and for the future, and that what he learns in shop is related to life outside—for only such teaching will call forth the best effort of every boy and girl.

*Behave* so that it is evident to others in the school building that you believe your subject is no more and no less important than any other subject, that you are willing to share your unique experience and thinking with your group, that you are willing to borrow and lend ideas—in short, that you are a member of a professional team, not a lone operator.

*Plan* so that you have time and energy not only for your shop but for other phases of school life, not the least of which is taking part in discussions on ways to improve the curriculum, ways to counsel children, ways to distribute the load of supervising extraclass work—only in this manner will "cooperative administration" take on meaning.

*Talk* so that the pupils around you will sense the pride that you have in your profession and will be inspired to make education their own careers—for only as each teacher helps refill the ranks of the teaching profession can the nation escape the blight of a teacher shortage.

*Act* so that it is evident to all that you feel humble in the task of educating children, that you welcome the help of supervisor, nurse, or janitor, that you are trying to learn more about your subject, more about children, and more about how to match subject and child.

*Believe* so that should attacks on public schools and teachers flare up in your community you will not lose faith either in education or in the people who are doing the criticizing, but will take the occasion of the attack to speak up for what you believe is good in education and to reexamine and improve that which properly needs improvement.

*Work* so that you go through each day with ease, planning with confidence, performing with pleasure, meeting problems with decision and never reviewing with regret—here is the path to your own peace and serenity. ★


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**Comes the Revolution?** — Congress started something when it passed the Smith-Hughes Act in 1917. Now a lady from Texas wants to change all that.

What Congress began 35 years ago with the enactment of the famous vocational-education law was a new pattern for aiding states to carry on their work in public health, welfare, and education. Since then, the U.S. government has used the formula of the Smith-Hughes Act, with adaptations, to help states promote their fight against tuberculosis, cancer, mental disease; to promote general health; to aid children and needy mothers; and to rehabilitate the physically injured. When the lady from Texas, Mrs. Oveta Culp Hobby, came to Washington to take over the activities of the Department of Health, Education, and Welfare, she found 14 separate grants-in-aid programs under her jurisdiction.

Since the arrival of Mrs. Hobby in Washington coincided with the new Administration's policy of "starting over," her lawyers and her experts began to study the grants-in-aid programs. After a year's work, the Department reached a decision. On March 4, Mrs. Hobby came before the House Committee on Interstate Commerce with the argument that "the number, variation, and complexity of existing authorizations and regulations" were obstacles to effective administration. She claimed that the pattern and structure of the grants were needlessly rigid and complicated. Greater flexibility, she said, was needed; and greater freedom must be given to the states in spending their grants. "We must offer the states an opportunity for greater initiative," said Mrs. Hobby, "and make federal assistance more responsive to the needs of the states."

She announced that her lawyers had found the formula to carry out these objectives; that the formula had been written into a new bill to revise the grants-in-aid for vocational rehabilitation and for public health. And that it will also be written into a new bill covering vocational education.

**The Blueprint.**—As this Letter goes to press the new bill has not yet been introduced in Congress (a sponsor is not easy to find for so revolutionary a measure). One draft of the measure, however, has been printed and is circulating among officials in the Office of Education and the Bureau of the Budget. Its details may change. But its basic features will not. These are three in number:

1. *Support.* Each year Congress would vote a bulk sum to be distributed among the states for meeting their costs of vocational education. Each state would receive a sum determined on the basis of "the equalization formula" used in the Hospital Survey and Construction Act. This formula takes into consideration the population and the wealth of each state. The wealth of a state is measured by per-capita income index.

Of course, each state would be expected to match the federal dollar in proportion to their economic ability. Rich states would put up $2 for every single federal dollar; poor states would put up $1 for every federal $2.

The real important change, however, is that Mrs. Hobby wants to wipe out the categorical grants—that is, earmarking grants for trade and industry, home economics, vocational agriculture, and distributive education. A new "block grant" approach would be used instead. Mrs. Hobby justifies this by saying:

"This would give the states far more flexibility in meeting their special individual problems. In addition, it would restore to an important degree to the state and local communities initiative and flexibility in the planning and operation of their programs."

2. *Extension and improvement.* When

(*Continued on page* 38)

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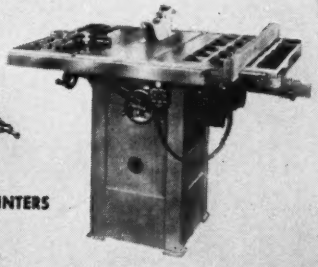

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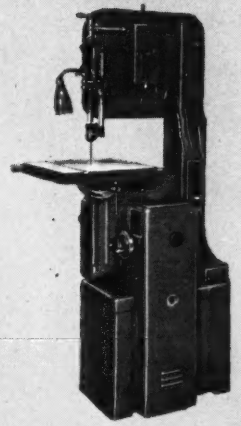

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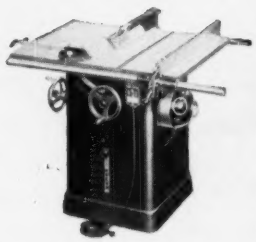

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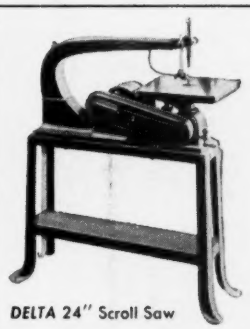

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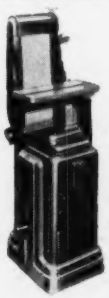

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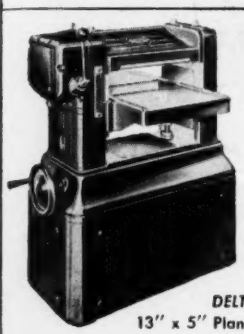

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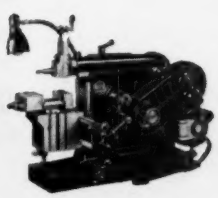

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